



ADDENDUM NO. 2

TO

Contract Documents and Plan Drawings

FOR

Snyderville Basin Water Reclamation District
ECWRF Training/Fleet Facility and Seismic Upgrades Project

March 5, 2014



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This Addendum No. 2, including attachments, modifies the Bidding Documents for the ECWRF Training/Fleet Facility and Seismic Upgrades Project, and shall become part of the Contract Documents for this Project.

Bidders shall acknowledge receipt of Addenda by number in the space provided for that purpose on Document 00410 – Bid Form.

I. CHANGES TO PRIOR ADDENDUM

A. BIDDING DOCUMENTS

1. Addendum No. 1, Invitation to Bid, Section 00100, Article 1, 1.01:
 - a. Change the last sentence of paragraph 1.01 to read as follows:
“Bids shall be date and time stamped before 3:00 p.m. on April 8th, 2014 local time, at which time they will be opened and read aloud.”

B. CONTRACT DOCUMENTS: DRAWINGS

1. Addendum No. 1, Drawing TF-S-02, sheet 29 of 106.
 - a. Replace the drawing with the attached drawing TF-S-02.
2. Addendum No. 1, Drawing TF-S-03, sheet 30 of 106.
 - a. Replace the drawing with the attached drawing TF-S-03.
3. Addendum No. 1, Drawing 03-E-02, sheet 64 of 106.
 - a. Replace the drawing with the attached drawing 03-E-02.
4. Addendum No. 1, Drawing 03-E-04, sheet 66 of 106.
 - a. Replace the drawing with the attached drawing 03-E-04.
5. Addendum No. 1, Drawing 05-E-01, sheet 71 of 106.
 - a. Replace the drawing with the attached drawing 05-E-01.
6. Addendum No. 1, Drawing 05-E-02, sheet 72 of 106.
 - a. Replace the drawing with the attached drawing 05-E-02.
7. Addendum No. 1, Drawing 05-E -03, sheet 73 of 106.
 - a. Replace the drawing with the attached drawing 05-E -03.
8. Addendum No. 1, Drawing 05-E -04, sheet 74 of 106.
 - a. Replace the drawing with the attached drawing 05-E -04.
9. Addendum No. 1, Drawing TF-E-01, sheet 78 of 106.
 - a. Replace the drawing with the attached drawing TF-E-01.
10. Addendum No. 1, Drawing TF-E-02, sheet 79 of 106.
 - a. Replace the drawing with the attached drawing TF-E-02.

11. Addendum No. 1, Drawing TF-E-04, sheet 81 of 106.
 - a. Replace the drawing with the attached drawing TF-E-04.
12. Addendum No. 1, Drawing TF-E-05, sheet 82 of 106.
 - a. Replace the drawing with the attached drawing TF-E-05.
13. Addendum No. 1, Drawing TF-E-06, sheet 83 of 106.
 - a. Replace the drawing with the attached drawing TF-E-06.
14. Addendum No. 1, Drawing TF-E-09, sheet 86 of 106.
 - a. Replace the drawing with the attached drawing TF-E-09.
15. Addendum No. 1, Drawing TE-02, sheet 95 of 106.
 - a. Replace the drawing with the attached drawing TE-02.

II. BIDDING DOCUMENTS

- A. NOT USED

III. CONTRACT DOCUMENTS: CONTRACT/TECHNICAL SPECIFICATIONS

- A. Specification Section 04220 – Concrete Unit Masonry
 1. Paragraph 3.02.F – Grouting and Reinforcement:
 - a. Line Item 1 should read as follows:
 1. Bar lap splices shall be in accordance with the Lap Splice Length table found in Typical Detail S400 – Masonry notes.
- B. Specification Section 15300 – Fire Sprinkler System
 1. Paragraph 1.05 Scope of Work, Line Item 1.
 - a. Change Line Item 1 to read as follows:
 - 1 Perform Work as specified in this Section, Section 16710, Section 14240 and as indicated on the Drawings to provide a complete and operational fire protection system. Provide necessary system components for the automatic sprinkler system in the elevator shaft so that elevator power disconnect triggers before sprinkler system discharges. Coordinate with fire alarm contractor and electrical contractor. System to meet applicable codes and PCFD approval.
- C. Specification Section 16050 – Common Work Results for Electrical
 1. Paragraph 1.08.C – Plant area Electrical Work requirements: Replace paragraph 1 with the following:
 1. Provide all Electrical Work in accordance with the following table, unless otherwise specifically indicated on the Drawings:

PLANT AREA	NEMA ENCLOSURE TYPE	EXPOSED CONDUIT TYPE	ENVIRONMENT W = WET D = DAMP C = CLEAN/DRY X = CORROSIVE H = HAZARDOUS	SUPPORT MATERIALS
Interior of Emergency Generator Building	1, 12	GRC Rigid Galvanized Steel	C	Galvanized Steel
Exterior of Emergency Generator Building	4X	GRC Rigid Galvanized Steel	W	Galvanized Steel
Interior of Training / Fleet Facility Bldg	1,12	EMT Electrical Metal Tubing except for the following : 1) GRC for all 480v electrical distribution equipment and associate branch circuits from MCC-TF. 2) GRC for elevator shaft area.	C	Galvanized Steel
Exterior of Training/ Fleet Facility Bldg	4	GRC Rigid Galvanized Steel	W	Galvanized Steel

- D. Specification Section 16411 – Disconnect Switches
 - 1. Replace Section 16411 with the attached Section 16411 – Disconnect Switches.
- E. Specification Section 16710 – Fire Alarm and Smoke Detection System
 - 1. Replace Section 16710 with the attached Section 16710 – Fire Alarm and Smoke Detection System.
- F. Specification Section 16752 – Electronic Access Control and Intrusion Detection
 - 1. Replace Section 16752 with the attached Section 16752 – Electronic Access Control and Intrusion Detection.

IV. CONTRACT DOCUMENTS: DRAWINGS

- A. Drawing D-01, sheet 5 of 106. General Notes
 - 1. Add General Note 2 to read as follows:
 - 2. Existing PW and UW pipes to be field verified for depth during construction. Record Drawings indicate an installation depth below frost line. Contractor to assume 5' of bury depth for existing water lines for estimating purposes.
- B. Drawing C-04, sheet 10 of 106. General Notes.
 - 1. Add General Note 8 to read as follows:
 - 8. Existing PW and UW pipes to be field verified for depth during construction. Record Drawings indicate an installation depth below frost line. Contractor to assume 5' of bury depth for existing water lines for estimating purposes.
- C. Drawing GS-01, sheet 27 of 106.
 - 1. Replace the drawing with the attached drawing GS-01.
- D. Drawing TF-A-01, sheet 20 of 106.
 - 1. Detail A, Lower Plan: Keynote 16 is pointing to the wall near the South stairwell and also to the walls in the lower right corner. This keynote should be Keynote 3. See North side of Lower Plan for similar keynote callouts.
 - 2. Detail A, Lower Plan: Remove the elevator rear door opening in the masonry block wall (door opening into Vehicle Storage Room #101). See the changes to TF-S-02 for more information.
 - 3. Keynote 3 should read as follows:

“3” Wall insulation system, 2 ½” rigid foam insul between metal z furring covered with foil backed gyp bd. Typ at Ext Walls, see spec. In lieu of foil backed gyp board, an alternate Class I vapor retarder with gyp board will be acceptable. Submit proposed alternate vapor retarder with manufacturer certified testing for Engineer approval.”
- E. Drawing TF-A-02, sheet 21 of 106.
 - 1. Keynote 2 should read as follows:

“3” Wall insulation system, 2 ½” rigid foam insul between metal z furring covered with foil backed gyp bd. Typ at Ext Walls, see spec. In lieu of foil backed gyp board, an alternate Class I vapor retarder with gyp board will be acceptable. Submit proposed alternate vapor retarder with manufacturer certified testing for Engineer approval.”
- F. Drawing TF-A-05, sheet 24 of 106. Detail G.
 - 1. The light fixtures in the gyp ceiling shown in the stairwells on both sides of the building are to be wall mounted fixtures. See TF-E-03 and TF-E-04 for more information.
- G. Drawing TF-A-06, sheet 25 of 106. Keynote 7.
 - 1. Keynote 7 should read, “Ceramic wall tile color accent band.”

- H. Drawing TF-S-08, sheet 35 of 106.
 - 1. Replace the drawing with the attached drawing TF-S-08.
- I. Drawing TF-M-03, sheet 55 of 106.
 - 1. Detail A – PW and Fire Sprinkler Riser Schematic. General Notes. Add General Note 5 to read as follows:
 - 5. Provide additional components to the fire sprinkler system as necessary to meet the fire codes, electrical codes, and elevator safety codes. Power disconnect to the elevator must occur before the fire sprinklers discharge into the elevator shaft. Fire Sprinkler contractor to coordinate with Elevator Contractor, Electrical Contractor, and Fire Alarm contractor. See Sections 14240, 15300, and 16710 for more information.
- J. Drawing 01-E-01, sheet 62 of 106.
 - 1. Replace the drawing with the attached drawing 01-E-01.
- K. Drawing 04-E-01, sheet 70 of 106.
 - 1. Replace the drawing with the attached drawing 04-E-01.
- L. Drawing 05-E-05, sheet 75 of 106.
 - 1. Replace the drawing with the attached drawing 05-E-05.
- M. Drawing 05-E-06, sheet 76 of 106.
 - 1. Replace the drawing with the attached drawing 05-E-06.
- N. Drawing 05-E-07, sheet 77 of 106.
 - 1. Replace the drawing with the attached drawing 05-E-07.
- O. Drawing TF-E-03, sheet 80 of 106.
 - 1. Replace the drawing with the attached drawing TF-E-03.
- P. Drawing TF-E-07, sheet 84 of 106.
 - 1. Replace the drawing with the attached drawing TF-E-07.
- Q. Drawing TF-E-08, sheet 85 of 106.
 - 1. Replace the drawing with the attached drawing TF-E-08.
- R. Drawing EG-E-01, sheet 87 of 106.
 - 1. Replace the drawing with the attached drawing EG-E-01.
- S. Drawing TA-03, sheet 91 of 106.
 - 1. Add the attached Typical Detail A406 to this sheet.
- T. Drawing TS-03, sheet 104 of 106.
 - 1. Replace the drawing with the attached drawing TS-03.

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This Addendum, including attachments, shall become part of the Contract and all provisions of the Contract shall apply thereto.

The time provided for completion of the Contract is not changed.

Bidders shall acknowledge receipt of all Addenda by number in the space provided in the Proposal.

CAROLLO ENGINEERS, INC.



Jacob Baer
PE NO. 7667716-2202

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ATTACHMENTS

SECTION 16411

DISCONNECT SWITCHES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Fusible and non-fusible disconnect switches.
 - 2. Elevator Control Switch
- B. Related sections:
 - 1. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.
 - 2. It is the Contractor's responsibility for scheduling and coordinating the Work of subcontractors, suppliers, and other individuals or entities performing or furnishing any of Contractor's Work.
 - 3. The following sections are related to the Work described in this Section. This list of related sections is provided for convenience only and is not intended to excuse or otherwise diminish the duty of the Contractor to see that the completed Work complies accurately with the Contract Documents.
 - a. Section 01330 - Submittal Procedures.
 - b. Section 16050 - Common Work Results for Electrical.
 - c. Section 16075 - Electrical Identification.
 - d. Section 16305 - Electrical System Studies.
 - e. Section 16494 - Low Voltage Fuses.

1.02 REFERENCES

- A. As specified in Section 16050.
- B. Underwriters Laboratories Inc. (UL):
 - 1. 20 - General-Use Snap Switches.
 - 2. 98 - Enclosed and Dead-Front Switches.
 - 3. 508 - Standard for Industrial Control Equipment.
- C. National Electric Manufacturer's Association (NEMA):
 - 1. 250 - Enclosures for Electrical Equipment.
 - 2. KS 1-2001- Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

1.03 DEFINITIONS

- A. As specified in Section 16050.
- B. Specific definitions:
 - 1. Safety switches and disconnect switches are to be considered synonymous.

1.04 SYSTEM DESCRIPTION

- A. Provide heavy-duty type disconnect switches as indicated on the Drawings and specified in the Contract Documents.
- B. Provide disconnect switches with the number of poles, voltage, current, short circuit, and horsepower ratings as required by the load and the power system.
- C. Provide local horsepower rated disconnect switch as indicated on the Drawings.

1.05 SUBMITTALS

- A. Furnish submittals as specified in Sections 01330 and 16050.
- B. Product data:
 - 1. Manufacturer.
 - 2. Manufacturer's specifications and description.
 - 3. Ratings:
 - a. Voltage.
 - b. Current.
 - c. Horsepower.
 - d. Short circuit rating.
 - 4. Fused or non fused.
 - 5. NEMA enclosure type.
 - 6. Dimensions:
 - a. Height.
 - b. Width.
 - c. Depth.
 - 7. Weight.
 - 8. Cross-referenced to the disconnect schedule indicated on the Drawings.
- C. Shop drawings:
 - 1. Manufacturer's installation instructions:
 - a. Indicate application conditions and limitations of use stipulated by product testing agency specified under Quality Assurance, Regulatory Requirements below.
 - b. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.
 - 2. Identify motor or equipment served by each switch; indicate nameplate inscription.
- D. Installation instructions:
 - 1. Provide anchorage instructions and requirement based on the seismic requirements at the Project Site as specified in Section 16050 and calculations:
 - a. Stamped by a professional engineer registered in the state where the Project is being constructed.

1.06 QUALITY ASSURANCE

- A. As specified in Section 16050.
- B. Regulatory requirements:

1. NEMA KS1- Enclosed and Miscellaneous Distribution Switches (600 V Maximum).
 2. UL 98 - Enclosed and Dead-Front Switches.
- C. Disconnect switches shall be UL listed and labeled.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. As specified in Section 16050.

1.08 PROJECT OR SITE CONDITIONS

- A. As specified in Section 16050.

1.09 SEQUENCING

- A. Conduct the initial fault current study as specified in Section 16305 and submit results for Engineer's review.
- B. After successful review of the initial fault current study, as specified in Section 16305, submit complete equipment submittal as specified in the Submittal article of this Section for Engineer's review.

1.10 SCHEDULING (NOT USED)

1.11 WARRANTY

- A. As specified in Section 16050.

1.12 SYSTEM START-UP

- A. As specified in Section 16050.

1.13 OWNER'S INSTRUCTIONS (NOT USED)

1.14 COMMISSIONING (NOT USED)

1.15 MAINTENANCE (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. One of the following or equal:
1. Schneider Electric/Square D Company.
 2. Eaton/Cutler-Hammer.
 3. General Electric.
 4. Siemens.
 5. Appleton.
 6. Crouse-Hinds.

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS (NOT USED)

2.04 MANUFACTURED UNITS (NOT USED)

2.05 EQUIPMENT

A. Switch mechanism:

1. Quick-make, quick-break heavy-duty operating mechanisms:
 - a. Provisions for padlocking the switch in the Off position.
 - b. A minimum of 90-degree handle travel position between Off and On positions:
 - 1) Provide handle position indicators to identify the handle position.
 - c. Full cover interlock to prevent opening of the switch door in the On position and to prevent closing the switch mechanism with the door open:
 - 1) With an externally operated override.

B. Switch interior:

1. Switch blades visible when the switch is Off and the cover is open.
2. Lugs:
 - a. Front accessible.
 - b. Removable.
 - c. UL listed for 60/75-degree Celsius copper conductors.
3. Current carrying parts completely plated to resist corrosion.
4. Removable arc suppressors to facilitate easy access to line side lugs.
5. Furnish equipment ground kits for every switch.

C. Fused switches:

1. Furnish with fuses as indicated on the Drawings:
 - a. Provide fuses as specified in Section 16494.
2. UL approved for field conversion from standard Class H fuse spacing to Class J fuse spacing:
 - a. Ratings 100 amperes through 600 amperes at 240 volts.
 - b. Ratings 30 amperes through 600 amperes at 600 volts.
 - c. Provide spring reinforced and plated fuse clips.

D. Ratings:

1. UL horsepower rated for AC or DC with the rating not less than the load served.
2. Current:
 - a. 30 to 1,200 amperes.
3. Voltage:
 - a. 250 volts AC, DC.
 - b. 600 volts (30 A to 200 A, 600 volts DC).
4. Poles:
 - a. 2, 3, 4, and 6 poles.
5. UL listed short circuit ratings:
 - a. 10,000 RMS symmetrical amperes when used with or protected by Class H or K fuses (30-600 amperes).
 - b. 200,000 RMS symmetrical amperes when used with or protected by Class R or J fuses (30-600 amperes employing appropriate fuse rejection).

- c. 200,000 RMS symmetrical amperes when used with or protected by Class L fuses (800-1,200 amperes).
 - 6. Where not indicated on the Drawings, provide switches with the NEMA ratings specified in Section 16050 for the installed location.
- E. Size, fusing and number poles as indicated on the Drawings or as required:
1. Provide solid neutral where indicated on the Drawings.
- F. Provide Elevator Control Switch in a single NEMA enclosure with all necessary relay(s), control transformer and other options as listed below, and as shown on drawings. The Elevator Control Switch shall be constructed, listed, and certified to the standards as listed in above. The Elevator Control Switch shall have an ampere rating as shown on the Contract Drawings, and shall include a horsepower rated fusible switch with shunt trip capabilities. The ampere rating of the switch shall be based upon elevator manufacturer requirements and utilize Class J Fuses (provided separately). It shall include as an accessory, a 100 VA control power transformer with primary and secondary fuses. The primary voltage rating shall be 480 volts with a 120 volt secondary. It shall also contain an isolation relay (3PDT, 10 amp, and 120V). The coil of the isolation relay shall be 120 Vac . A normally open dry contact shall be provided by the Fire Alarm Safety System to energize the isolation relay and activate the shunt trip solenoid (140 VA inrush at 120V). The switch shall include a 120 volt key to test switch and a 1-NO/1-NC mechanically interlocked auxiliary contact rated 5A, 120 Vac as standard. The switch shall contain the following options:
1. "ON" Pilot Light (Green, Red or White)
 2. Isolated Full Capacity Neutral Lug
 3. Fire Alarm Voltage Monitoring Relay (Needed to comply with NFPA 72)
 4. NEMA 1 Enclosure
 5. Main Switch Auxiliary Contacts (1 NO/1 NC)
- . The module shall have been successfully tested to a short circuit rating with Bussmann® Low-Peak® Class J fuses at 200,000 amps RMS Symmetrical. All switches shall have shunt trip capabilities at 120 Vac from remote fire safety signal. Branch feeders shall be selectively coordinated and fed with an upstream supply over-current protective device at a minimum of 2:1 size ratio utilizing LOW-PEAK® (Class J, RK1, or L) fuses

2.06 COMPONENTS (NOT USED)

2.07 ACCESSORIES

- A. Disconnect switches to have provisions for a field installable "B" type electrical interlock for position indication as indicated on the Drawings.
- B. Disconnect switches to have provisions for a field installed insulated groundable neutral kit as indicated on the Drawings.
- C. NEMA Type 7 and 9 enclosures furnished with drain and breather kit when used in outdoor applications.

- 2.08 MIXES (NOT USED)**
- 2.09 FABRICATION (NOT USED)**
- 2.10 FINISHES (NOT USED)**
- 2.11 SOURCE QUALITY CONTROL (NOT USED)**

PART 3 EXECUTION

- 3.01 EXAMINATION (NOT USED)**
- 3.02 PREPARATION (NOT USED)**
- 3.03 INSTALLATION**
 - A. As specified in Section 16050.
 - B. Install the equipment in accordance with the accepted installation instructions and anchorage details to meet the seismic and wind load requirements at the Project site.
 - C. General:
 - 1. Use Myers hubs or bolt-on hubs for all conduit penetrations on NEMA Type 12, Type 4, and Type 4X enclosures.
 - 2. Provide all mounting brackets, stands, supports and hardware as required:
 - a. Match finish and materials for all brackets, stands, and hardware with the switch installed.
 - b. Provide adequate supporting pillar(s) for disconnect switches in accordance with the approved seismic calculations, and locate aboveground or above decks, where there is no structural wall or surface for box.
 - 3. When possible, mount switches rigidly to exposed building structure or equipment structural members:
 - a. For NEMA Type 4 and Type 4X locations, maintain a minimum of 7/8 inch air space between the enclosure and supporting surface.
 - b. When mounting on preformed channel, position channel vertically so that water may freely run behind the enclosure.
 - 4. Provide a nameplate for each disconnect switch:
 - a. Provide per requirements specified in Section 16075.
 - b. Identify voltage, circuit, fuse size, and equipment served on the nameplate.

- 3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)**

- 3.05 REPAIR/RESTORATION (NOT USED)**
- 3.06 RE-INSTALLATION (NOT USED)**
- 3.07 FIELD QUALITY CONTROL**

- A. As specified in Section 16050.

3.08 ADJUSTING (NOT USED)

3.09 CLEANING

- A. As specified in Section 16050.

3.10 DEMONSTRATION AND TRAINING (NOT USED)

3.11 PROTECTION

- A. As specified in Section 16050.

3.12 SCHEDULES (NOT USED)

END OF SECTION

SECTION 16710

FIRE ALARM AND SMOKE DETECTION SYSTEM

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes requirements for:
 - 1. Design, supply and installation of a complete conventional type fire alarm system, including:
 - a. Initiating devices.
 - b. Notification appliances.
 - c. Controls.
 - d. Supervisory devices.
 - e. Software.
- B. Related sections:
 - 1. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.
 - 2. It is the Contractor's responsibility for scheduling and coordinating the Work of subcontractors, suppliers, and other individuals or entities performing or furnishing any of Contractor's Work.
 - 3. The following sections are related to the Work described in this Section. This list of related sections is provided for convenience only and is not intended to excuse or otherwise diminish the duty of the Contractor to see that the completed Work complies accurately with the Contract Documents.
 - a. Section 01330 - Submittal Procedures.
 - b. Section 01782 - Operation and Maintenance Data.
 - c. Section 14240 - Hydraulic Elevators
 - d. Section 15300 - Fire Sprinkler System
 - e. Section 16050 - Common Work Results for Electrical.
 - f. Section 16123 - 600 Volt or Less Wires and Cables.
 - g. Section: 16411- Disconnect Switches
- C. Utilize a single Fire Alarm System Supplier (FASS) to design, furnish, and install all materials, equipment, labor, and services required to achieve a fully integrated and operational fire alarm system, in complete compliance with the NFPA Class and Style specified.
- D. Coordinate the fire alarm system with related equipment and materials furnished under other sections of these Specifications.

1.02 REFERENCES

- A. As specified in Section 16050
- B. FM Global (FM).
- C. National Fire Protection Association (NFPA):
 - 1. 13 - Standards for the Installation of Sprinkler Systems

- 2. 70 - National Electric Code (NEC).
- 3. 72 - National Fire Alarm Code.
- D. ASTME A17.1 Safety Code for Elevators and Escalators
- E. Factory Mutual (FM).
- F. Park City Fire Department (PCFD) requirements apply.
- G. Underwriters Laboratories, Inc. (UL):
 - 1. 268 - Standard for Smoke Detectors for Fire Alarm Systems.
 - 2. 268A - Standard for Smoke Detectors for Duct Application.
 - 3. 464 - Standard for Audible Signal Appliances.
 - 4. 1971 – Standard for Signaling Devices for the Hearing Impaired.

1.03 DEFINITIONS

- 1. As specified in Section 16050.

1.04 SYSTEM DESCRIPTION

- A. Provide a complete, non-coded, addressable, microprocessor-based fire alarm system with initiating devices, notification appliances, and controls and supervisory devices as indicated on the drawings but not limited to the items as shown on the drawings and as specified in this Section.
 - 1. System connections for initiating (signaling) circuits and notification appliance circuits shall be Class B Style 4.
 - 2. Circuit supervision: Circuit faults shall be indicated by a trouble signal at the FACP. Provide a distinctive audible tone and alphanumeric annunciation.
- B. Coordinate and perform WORK indicated in this Section and in conjunction with WORK specified in Section 15300 to provide a complete fire alarm system installation.
- C. Furnish, install, adjust, and make operable all equipment, materials, tools, electrical wiring, conduit, labor, engineering, drawings, etc. necessary for a complete fire alarm system with said system being made ready for operation in accordance with the requirements of the PCFD and all authorities having jurisdiction.
- D. Specifications and associated drawings are to convey the general scope required. Examine all existing physical conditions which may be material to the performance of WORK. No extra payments will be allowed to the CONTRACTOR as a result of extra WORK made necessary by his failure to do so.
- E. Omission of any necessary system component as required by the authorities having jurisdiction, in the Specifications and associated drawings shall not relieve the CONTRACTOR of the responsibility of providing such necessity, without additional cost to OWNER.
- F. Errors, omission, discrepancy, or lack of clarity promptly identified to ENGINEER for clarification.

- G. Provide all devices and equipment required by these specifications and drawings. Under no circumstances delete any equipment or devices without the written directive of ENGINEER.
- H. Refer to Section 15300-1.05 Scope Of Work.

1.05 SUBMITTALS

- A. Furnish submittals as specified in Sections 01330 and 16710.
- B. Product Data:
 - 1. Data sheets for system components highlighted to indicate the specific products, features, or functions required to meet this specification including electrical characteristics such as voltage and current ratings, connection requirements, software and firmware versions and operational details of all equipment.
 - 2. Alternate or as-equal products submitted under this contract must provide a detailed line-by-line comparison of how the submitted product meets, exceeds, or does not comply with this Specification.
- C. Shop drawings:
 - 1. Working plans sealed by a Professional Engineer registered in the State of Utah experience in the design of fire alarm systems.
 - 2. Fire detection system block diagram including interconnection with fire sprinkler flow switches and valves.
 - a. Fire detection functions and control interconnections for each building as described in this Section and as indicated on the drawings but not limited to the fire alarm system items as shown on the drawings.
 - b. FACP layout, schematic, and wiring diagrams, panel displays, and LED arrangement.
 - c. Detection device type, features, and setpoints.
 - d. Number and size of wires, type of wire insulation required for devices specified, and conduit size for proposed circuits.
 - 3. System power and battery charts with performance graphs and voltage drop calculations to assure that system will operate per the specified backup time periods and under all voltage conditions per UL and NFPA standards.
 - 4. Test reports indicating satisfactory completion of required tests and inspections.
 - 5. System layout on floor plan drawings, drawn to scale using AutoCad software.
 - 6. Location diagrams for all ventilation duct mounted smoke detectors and corresponding ventilation system shutdown interlock.
 - 7. Fire alarm system input-output point list.
 - 8. Spare parts list for extra materials being furnished.
 - 9. Operating and Maintenance data as specified in Section 01782.
- D. Name of fire extinguishing system supplier and verification that fire detection and fire extinguishing systems have been coordinated.
- E. Copy of FACP program and programming software on compact disc.
- F. Manufacturer's installation instructions.

- G. Designer, manufacturer and installer qualifications.
- H. Submit the equipment layout drawings and product data to the PCFD and the local authority having jurisdiction (AHJ), for review and approval of the proposed system.
 - 1. Contractor is responsible for paying plan check, permit and inspection fees as necessary.
 - 2. Submit AHJ's approval to Engineer.

1.06 QUALITY ASSURANCE

- A. As specified in Section 16050.
- B. Designer qualifications:
 - 1. Designer of similar installations for a minimum of 5 years with a satisfactory performance record.
- C. Manufacturer qualifications: Manufacturer of proposed system for a minimum of 10 years with satisfactory performance record.
- D. Installer qualifications: Manufacturer approved installer of products similar to specified products on a minimum of 10 projects of similar scope as this project with a satisfactory performance record.
- E. Installation to be supervised by NICET Level II Technician.
- F. Fire alarm systems shall be UL approved.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. As specified in Section 16050.

1.08 PROJECT OR SITE CONDITIONS

- A. As specified in Section 16050.

1.09 SEQUENCING

- A. Submit plans to PCFD & AHJ for approval.
- B. Make submittals, including PCFD & AHJ's approval to the Engineer.

1.10 SCHEDULING (NOT USED)

1.11 WARRANTY

- A. As specified in Section 16050.

1.12 SYSTEM START-UP

- A. As specified in Section 16050

1.13 OWNER'S INSTRUCTIONS (NOT USED)

1.14 COMMISSIONING (NOT USED)

1.15 MAINTENANCE

- A. Furnish service and maintenance of fire alarm system for 1 year from date of Substantial Completion.
- B. Renewal of maintenance service contract: No later than 60 days before the expiration of the maintenance service contract, deliver to the Owner a proposal to provide contract maintenance and repair services for an additional 1-year term. Owner is under no obligation to accept maintenance service contract renewal proposal.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fire alarm and smoke detection systems: One of the following or equal:
 - 1. Siemens.
 - 2. Simplex Grinnell.
 - 3. Honeywell, Incorporated.
 - 4. Notifier.
 - 5. ADT Security System.
 - 6. General Electric.

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS (NOT USED)

2.04 MANUFACTURED UNITS (NOT USED)

2.05 EQUIPMENT

- A. Provide the fire alarm system with all necessary hardware and software to perform the following functions:
 - 1. Fire alarm and detection operations.
 - a. Provide all required network interface modules, fiber optic communication modules, relay modules, and zone modules for interconnections as required and specified in this Section.
 - 2. Control and monitoring of duct mounted smoke detectors, fire suppression systems, heat detectors, smoke detectors, elevator control switch and other equipment as indicated in the Specifications or as indicated on the Drawings.
 - 3. Annunciation:
 - a. Operation of alarm and supervisory initiating devices shall be annunciated at the FACP indicating the location and type of device.
 - b. Signal transmission:
 - 1) Alarms from the FACP shall be routed to plant control system in operations building.
 - 4. System general alarm sequence:
 - a. Indication of alarm condition at the FACP .
 - b. Identification of the device that is the source of the alarm at the FACP .

- c. Operation of audible and visible notification devices throughout the building until silenced at FACP.
 - d. Shutting down supply and return fans serving zone where alarm is initiated.
 - e. Notifying the local fire department.
5. Alarm silencing:
- a. When the "Alarm Silence" button is pressed, all audible alarm signals turn off.
6. System reset:
- a. Provide a system reset button that returns the system to its normal state.
 - b. Display messages providing operator assurance of the sequential steps as they occur.
 - c. The system shall verify all circuits or devices are restored before resetting the system to avoid the potential for re-alarming the system.
 - d. Should an alarm condition continue, the system remains in an alarmed state.

2.06 COMPONENTS

- A. Fire alarm control panel (FACP):
 - 1. Power requirements:
 - a. 120 VAC input power via a dedicated circuit.
 - b. Battery system:
 - 1) Provided with sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in a normal supervisory mode for a period of 60 hours with 5 minutes of alarm operation at the end of this period.
 - 2) The system shall automatically transfer to battery standby upon power failure.
 - 3) Provide automatic battery charging and recharging operations.
 - 4) Supervise the system batteries so that a low battery condition or disconnection of the batteries indicates a trouble at the FACP.
 - 5) Battery Charger with battery volt meter and ammeter.
 - c. All circuits requiring system operating power shall be 24 VDC with individual fuses at the FACP.
 - d. Supervise the incoming power to the system so that any power failure will be indicated at the control unit.
 - 1) A green "power on" LED shall be displayed continuously while incoming power is present.
 - 2) FACP shall sound a trouble signal at loss of primary power and to indicate when the system is operating on battery power.
 - 2. Alphanumeric display and system controls:
 - a. Include an LCD display to indicate alarm, supervisory, and component status messages and include a keypad for use in entering and executing control commands.
 - b. Display battery voltage and amperage readouts on LCD display.
 - 3. Remote unit interface: supervised serial communication channel for control and monitoring of remotely located annunciators, transponders, and I/O panels.
 - 4. System supervision: Component or power supply failure places system in trouble mode.

5. Distributed module operation: Capable of allowing remote location of the following modules; through a supervised serial communications channel:
 - a. Addressable signaling line circuits.
 - b. Initiating device circuits.
 - c. Notification appliance circuits.
 - d. Auxiliary control circuits.
 - e. Graphic annunciator LED/switch control modules.
6. Group actuating devices together in zones represented by zone light emitting diodes, LED.
 - a. Provide provisions for supervised zone remote annunciator outputs.
 - b. Actuation of a UL approved alarm-initiating device shall cause the respective red alarm LED to flash.
 - 1) This LED should continue to flash until the alarm acknowledge switch is actuated.
 - 2) Once acknowledged, the LED or zone LED will be constantly illuminated until the actuating device is restored to normal and the system is reset.
7. FACP shall scan each addressable detector for its type identification to prevent inadvertent substitution of another sensor.
 - a. Upon detection of a “wrong device”, the FACP shall operate with the installed device at the default alarm settings for that sensor; 2.5 percent ob.
8. Supply with an alarm silence/acknowledge switch to silence the audible alarms.
 - a. Should a subsequent alarm actuation of a different zone occur, the alarm devices shall sound until silenced.
9. Cabinet:
 - a. UL listed, lockable steel enclosure.
 - b. Front access only.
 - c. If more than a single unit is required to form a complete control unit, provide matching modular unit enclosures.

B. Software:

1. Allows for loading and editing instructions and operating sequences as necessary.
2. Capable of on-site programming to accommodate system expansion and facilitate changes in operation.
3. Stored in a non-volatile programmable memory within the fire alarm control unit.
4. Loss of primary and secondary power shall not erase the instructions stored in memory.
5. Capable of full system operation during a new configuration download.

C. Graphic annunciator:

1. Announcer unit (addressable system):
 - a. LED-indicating light located on the floor plan for each device indicating the type of device and floor on which a signal was actuated.
2. Provide individual LED indicators for:
 - a. Each alarm and supervisory device.
 - b. System trouble.
 - c. Normal power and emergency power modes for the system.
 - d. Toggle or push-button switch tests the LEDs mounted on the unit.

- 1) Test switch does not require key operation.
 3. Enclosure:
 - a. Finish to match FACP.
 - b. Locking cover/display assembly.
 - c. Key and lock shall be common to all secured fire alarm system enclosures.
- D. Manual pull stations:
1. Description:
 - a. Double action type.
 - b. Red lexan or metal enclosure.
 - c. Molded, raised-letter operating instructions of contrasting color.
 - d. Mechanically latches upon operation and remain so until manually reset by opening with a key common with the FACPs.
 2. Protective shield: Provide a tamperproof, clear lexan shield and red frame that easily fits over manual pull stations.
- E. Smoke detectors:
1. In accordance with UL 268.
 2. Provide with the following features:
 - a. Factory nameplate: Serial number and type identification.
 - b. Operating voltage: 24 VDC, nominal.
 - c. Plug-in arrangement: Detector and associated electronic components are mounted in a module that connects to a fixed base with a twist-locking plug connection.
 - 1) Base to provide break-off plastic tab that can be removed to engage the head/base locking mechanism.
 - 2) No special tools required to remove head once it has been locked.
 - 3) Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the control unit.
 - d. LED that will flash each time it is scanned by the FACP (once every 4 seconds). In alarm condition, the detector head LED shall be on steady.
 - e. Magnetically actuated test switch to provide for easy alarm testing at the detector location.
 - f. EMI and RFI shielded.
 - g. Furnish with a communication transmitter and receiver in the mounting base having a unique identification and capability for status reporting to the FACP.
 - 1) Detector address to be located in base to eliminate false addressing when replacing detectors.
 - 2) Setting of addresses not required for removal of the detector head for cleaning.
 - h. Type: Photoelectric smoke. Where acceptable per PCFD, ionization type may be used.
 3. Provide end-of-line resistors as required.
- F. Duct smoke detectors:
1. Photoelectric type:
 - a. Sampling tube design and dimensions as recommended by the manufacturer for the specific duct size and installation conditions where applied.

2. Duct housing:
 - a. Furnish with supervised relay driver circuit for driving [up to 15 relays with a single "Form C" contact rated at 7A at 28 VDC or 10A at 120 VAC. This auxiliary relay output shall be fully programmable] [an auxiliary alarm relay with 2 "Form C" contacts rated at 1A at 28 VDC or 1/2A at 120 VAC resistive.
 - 1) Auxiliary relay operates when the detector reaches its alarm threshold.
 - b. Compact duct housing:
 - a. Transparent cover to monitor for the presence of smoke.
 - 1) Secured to housing by means of 4 captive fastening screws.
 - c. Duct housing:
 - a. Provide 2 test ports for measuring airflow and for testing.
 - 1) Ports will allow aerosol injection in order to test the activation of the duct smoke detector.
 - b. Provide a magnetic test area.
 - c. Red sensor status LED.
 - d. For maintenance purposes, it shall be possible to clean the duct housing sampling tubes by accessing them through the duct housing front cover.
 - d. Remote test station with an alarm LED and test switch.
 - e. Where indicated provide a NEMA 4X weatherproof duct housing enclosure.
 - f. Maintain circulation of conditioned air around the internally mounted addressable duct sensor housing to keep the sensor housing at its rated temperature range.
 - g. UL Listed to Standard 268A.
 - h. Detectors to provide a trouble signal to the FACP when the detector has reached its limit to compensate for environmental changes.

G. Heat detectors:

1. Provide heat fire detectors as required by the AHJ.
2. UL listed and FM approved.
3. Provide end-of-line resistors as required.

H. Addressable alarm-notification appliances:

1. Provide power, control, and supervision of horns and strobes over a single pair of wires. The signaling line circuit (SLC) digitally communicates with each appliance and receives a response to verify the appliance's presence on the channel. The channel provides a digital command to control appliance operation.
2. Class B (Style 4) notification appliances shall be wired without requiring traditional in/out wiring methods; addressable "T" Tapping shall be used.
3. Contains an electronic module and a selectable address setting (in addition to its notification appliance circuit) to allow it to occupy a unique location on the channel.
 - a. Allows the channel to perform appliance diagnostics that assist with installation and subsequent test operations.
4. A visible LED on each appliance provides verification of communications and will flash with the appliances address setting when locally requested using a magnetic test tool.
5. Addressable Controller: supervise channel SLC wiring, communicate with, and control addressable notification appliances

- I. Alarm-notification appliances:
 - 1. Horn:
 - a. In accordance with UL 464
 - b. Minimum sound pressure level of 83.
 - 2. Visible/Only (V/O):
 - a. In accordance with UL 1971.
 - b. Xenon flash tube.
 - c. Minimum flash intensities of 15cd, 75cd, and 110cd.
 - d. Provide a label inside the strobe lens to indicate the listed candela rating of the specific V/O appliance.
 - 3. Audible/Visible:
 - a. In accordance with UL 1971 and UL 464.
 - b. Xenon flash tube.
 - c. Provide a label inside the strobe lens to indicate the listed candela rating of the specific strobe.
 - d. Minimum sound pressure level of 83 dBA.
 - e. Capable of 2-wire synchronization with one of the following options:
 - 1) Synchronized strobe with horn on steady.
 - 2) Synchronized strobe with temporal code pattern on horn.
- J. Addressable circuit interface modules:
 - 1. Arrange to monitor one or more system components that are not otherwise equipped for addressable communication. Modules shall be used for monitoring of waterflow, valve tamper, non-addressable devices, and for control of evacuation indicating appliances and AHU systems.
 - 2. Mounted in a standard electric outlet box.
 - 3. Furnish with cover plates to allow surface or flush mounting.
 - 4. Receive their operating power from the signaling line or a separate 2 wire pair running from an appropriate power supply as required.
- K. Circuit interface modules:
 - 1. Type 1: Monitor circuit interface module:
 - a. For conventional 2-wire smoke detector and/or contact device monitoring with Class B or Class A wiring supervision.
 - 1) Supervision of the zone wiring will be Class B.
 - 2) Module shall communicate status (normal, alarm, trouble) to the FACP.
 - b. For conventional 4-wire smoke detector with Class B wiring supervision.
 - 1) Module shall provide detector reset capability.
 - 2) Fuse to provide over-current power protection for the 4-wire detector: 2 amp.
 - 3) Module will communicate status (normal, alarm, trouble) to the FACP.
 - 2. Type 2: Control circuit interface module:
 - a. Module for signals and other device control with Style 4 and Style 6 wiring supervision.
 - b. For non-supervised control.
 - c. Provide double pole double throw relay switching for 1 A at 28 VDC resistive, power limited and at 1/2 A at 120 VAC resistive, non-power limited.
 - d. The system shall be capable of energizing 100 percent of the relays connected to the signaling line circuit.

3. Type 3: Line powered monitor circuit interface module:
 - a. Power and its communications supplied by the 2 wire multiplexing signaling line circuit.
 - b. Provides location specific addressability to an initiating device by monitoring normally open dry contacts.
 - c. Module is required for monitoring waterflow and tamper switches.
4. The circuit interface module to be supervised and uniquely identified by the control unit.
 - a. Identification to be transmitted to the control unit for processing according to the program instructions.
 - b. On-board LED to provide an indication that the module is powered and communicating with the FACP.
 - c. LEDs provide a troubleshooting aid since the LED blinks on poll whenever the peripheral is powered and communicating.

L. Elevator Control Switch:

1. Provide interface to elevator control switch and elevator smoke detector.
 - a. Dry output contact to Fire Safety Interface relay coil.
 - b. Input for loss of control power alarm.

M. Wiring:

1. As specified in Section 16123.
2. Wire and cable shall be a type listed for its intended use by an approval agency acceptable to the PCFD and AHJ.
3. SLC channel wiring shall be unshielded twisted pair.
 - a. Capacitance rating of less than 60pf/ft.
 - b. Minimum 3 twists (turns) per foot.

2.07 ACCESSORIES (NOT USED)

2.08 MIXES (NOT USED)

2.09 FABRICATION (NOT USED)

2.10 FINISHES (NOT USED)

2.11 SOURCE QUALITY CONTROL (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION (NOT USED)

3.02 PREPARATION (NOT USED)

3.03 INSTALLATION

- A. As specified in Section 16050 and below.
- B. Install system components and all associated devices in accordance with applicable NFPA Standards and manufacturer's recommendations.

- C. Smoke detectors shall not be installed until after construction cleanup on all trades is complete and final in accordance with NFPA 72.
- D. Locate FACP as indicated on the Drawings.
- E. Water-flow and valve supervisory switches: Connect each sprinkler valve required to be supervised.
- F. Device location-indicating lights: Locate in the public space immediately adjacent to the device.
- G. Wiring:
 - 1. System wiring:
 - a. Installed in accordance with the appropriate articles from the 2011 edition of NEC 70.
 - 2. Color coding:
 - a. Color-code fire alarm conductors differently from the normal building power wiring.
 - b. Use 1 color code for alarm initiating device circuits wiring and a different color code for supervisory circuits.
 - c. Color-code notification appliance circuits differently from alarm-initiating circuits.
 - d. Paint fire alarm system conduits, junction boxes, and covers red.
 - e. Circuit that provides power to the FACP shall have a red marking and be identified as "FIRE ALARM CIRCUIT" in accordance with NFPA 72.
 - 3. Risers:
 - a. Install at least 2 vertical cable risers to serve the fire alarm system.
 - b. Separate risers in close proximity to each other, in accordance with NFPA 72, with a minimum 2-hour rated cable assembly, so the loss of 1 riser does not prevent the receipt or transmission of signal from other floors or zones.

3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION (NOT USED)

3.06 RE-INSTALLATION (NOT USED)

3.07 FIELD QUALITY CONTROL

- A. As specified in Section 16050
- B. Manufacturer's field services: Provide services of a factory-authorized service representative to:
 - 1. Supervise the field assembly and connection of components and the pre-testing, testing, and adjustment of the system.
 - 2. Verify proper installation, correct deficiencies, and be present at the jobsite during final inspection by the Engineer.
- C. Field tests:
 - 1. Notify the Engineer and the PCFD & AHJ in writing a minimum of 2 weeks before the scheduled day for the field acceptance tests.

2. Furnish the services of a field service engineer, and any special tools, equipment and labor to perform the tests.
3. Each device and control function shall be individually witness tested and recorded:
 - a. All acceptance tests shall be witnessed by and signed off by the Engineer, the FASS's field engineer, the installing Subcontractor, and a representative of the PCFD and AHJ.
4. The approved Field Acceptance Test Binder shall form the basis of the documentation of the system acceptance tests:
 - a. Furnish 2 certified copies of the tests.

3.08 ADJUSTING (NOT USED)

3.09 CLEANING

- A. As specified in Section 16710.

3.10 DEMONSTRATION AND TRAINING

- A. As specified in Section 16710.
- B. Training:
 1. Provide the services of a factory-authorized service representative to demonstrate the system and train Owner's maintenance personnel:
 - a. Train Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and maintaining the system. Provide a minimum of 4 hours training.

3.11 PROTECTION (NOT USED)

3.12 SCHEDULE (NOT USED)

END OF SECTION

SECTION 16752

ELECTRONIC ACCESS CONTROL AND INTRUSION DETECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Integrated security management systems hardware, software and programming.
- B. Related sections:
 - 1. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.
 - 2. It is the Contractor's responsibility for scheduling and coordinating the Work of subcontractors, suppliers, and other individuals or entities performing or furnishing any of Contractor's Work.
 - 3. The following Sections are related to the Work described in this Section. This list of Related Sections is provided for convenience only and is not intended to excuse or otherwise diminish the duty of the Contractor to see that the completed Work complies accurately with the Contract Documents.
 - a. Section 01330 - Submittal Procedures.
 - b. Section 16752 - Common Work Results for Electrical.
 - c. Section 16750 - Common Work Results for Electronic Safety and Security.

1.02 REFERENCES

- A. As specified in Sections 16050 and 16750.
- B. Institute of Electrical and Electronics Engineers (IEEE):
 - 1. 802.3 - Standard for Information technology-Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications.
- C. National Electrical Manufacturers Association (NEMA):
 - 1. 250 - Enclosures for Electrical Equipment (1000 V Maximum).
- D. Underwriters Laboratories, Inc. (UL).

1.03 DEFINITIONS

- A. As specified in Sections 16752 and 16750.

1.04 SYSTEM DESCRIPTION

- A. System intent, electronic security component:
 - 1. It is the intent of this Project to provide a fully integrated security system. This system shall also be capable of full integration with the existing security system installed by the Owner. There shall be capability to operate or

administrate this system from any workstation on the network with appropriate permissions. The electronic security component generally consists of the following elements:

- a. Intrusion detection systems (IDS):
 - 1) Interior intrusion detection (door contacts).
 - b. Access Control (ACS):
 - 1) Access control keypad. The ACS is intended to take all the IDS alarms and respond to those alarms as required.
 - 2) The ACS system must have the capability of being monitored off site. WAN communications will be provided by the Owner. All security information (intrusion,) must be capable of moving over a TCP/IP network to the monitoring points.
- B. The work to be provided, in addition to designing, furnishing, and installing the IDS and ACS shall include the following:
- 1. Provide software that meets specified Contract requirements and the necessary programming of the software. All software shall be the latest version, at the time of installation.
 - 2. Verification that proposed equipment and devices furnished are adequate for the intended purpose.
 - 3. With input from Owner personnel and plant operations personnel, program the intrusion detection, system to the needs of the Owner. It is the responsibility of the Contractor to work with the Owner to determine exactly what those initial programming requirements are, and to provide programming worksheets indicating all areas of programming.
 - 4. Upon final acceptance of completed system Owner systems administrator shall be responsible for further programming and system administration functions. System utilities shall be provided for the system administrator to use. Software for backups and log file maintenance shall also be provided.

1.05 SUBMITTALS

- A. Furnish submittals as specified in Sections 01330 and 16050
- B. Product data:
 - 1. Model numbers of all components furnished on the job.
 - 2. Manufacturer's catalog data sheets for all components.
 - 3. Input power requirements for all components.
 - 4. Warranty information.
- C. Shop drawings:
 - 1. Complete engineered drawings indicating:
 - a. Layout, wiring diagrams, and dimensions.
 - b. Point-to-point wiring diagrams for all devices.
 - c. Termination details for all devices.
 - d. Single-line system architecture drawings representing the entire system.
- D. Installation instructions:
 - 1. Manufacturer's installation instructions.
- E. Operation and maintenance manuals:
 - 1. Complete documentation shall be provided with the system.

2. The documentation shall completely describe all operations, each program, data sets, and the hardware and peripherals.
 - a. All updates, addendum, and adjustments to the documentation shall be provided at no additional charge, in the same quantities as originally required.
 - b. User manual:
 - 1) Step by step guide and instructions detailing all system user functions and responsibilities.
3. Technical maintenance manual:
 - a. Shall be a comprehensive and detailed document providing all maintenance action, system testing schedules, troubleshooting flowcharts, functional system layout, and block diagrams and schematic diagrams of all system wiring.

1.06 QUALITY ASSURANCE

- A. As specified in Section 16750.
- B. Permits and inspections:
 1. Material and workmanship will conform to all applicable legal and code requirements, and as specified in the Contract Documents.
 2. Perform all tests required to demonstrate conformance with the Contract Documents.
- C. Job conditions:
 1. The installation is to be supervised on a regular basis by a person designated by the Contractor. This person will be authorized and will be competent to be in charge of the Project.

1.07 DELIVERY, STORAGE AND HANDLING

- A. As specified in Section 16752.

1.08 PROJECT OR SITE CONDITIONS

- A. As specified in Section 16752.

1.09 SEQUENCING (NOT USED)

1.10 SCHEDULING (NOT USED)

1.11 WARRANTY

- A. As specified in Section 16752.

1.12 SYSTEM START-UP

- A. Phased testing: A phased acceptance test and performance demonstration program shall be developed and documented by the Contractor and his system integrator under the direction of the SMS systems engineer.
 1. These requirements shall apply to all system components and software.
 2. Operational scenarios shall be developed and used by the Contractor to simulate the actual use of the system in the normal environment of the facility.

3. Perform the tests and document the results under the supervision and witnessing of the SMS systems engineer and Owner representative.
4. The SMS systems engineer upon Owner approval reserves the right to modify the Contractor's plan or develop new operational test and evaluation procedures to effectively document system operations.

1.13 OWNER'S INSTRUCTIONS (NOT USED)

1.14 COMMISSIONING (NOT USED)

1.15 MAINTENANCE (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURERS (NOT USED)

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS (NOT USED)

2.04 MANUFACTURED UNITS (NOT USED)

2.05 EQUIPMENT

A. General:

1. The Access Control and Intrusion Detection system shall be furnished complete, installed, programmed, tested, and operational. The system is designed to secure the designated Owner facilities.

B. Scope of system:

1. The Access Control and Intrusion Detection system shall communicate with native TCP/IP Controllers over an Owner-owned Ethernet TCP/IP enterprise network.

2.06 COMPONENTS

A. Intrusion detection:

1. Intrusion detection module shall provide inputs to monitor door contacts. Locate intrusion detection points as indicated on the Drawings.

B. Door hardware:

1. Ancillary door hardware shall meet the following minimum specifications:
 - a. A surface-mounted magnetic switch shall be used for door alarms (NIC).
 - b. A wide gap overhead door contact shall be used for overhead loading dock doors.
 - 1) A low profile in rugged aluminum housing shall mount 6 " above the floor.
 - 2) Connection to the alarm circuit junction box shall be armored cable to protect the wiring.
 - 3) The magnet shall also be protected by a rugged aluminum housing mounted on the bottom of the overhead door.

- 4) Both the switch and the magnet assembly shall be weatherproofed and resistant to shock with multiple layers of protection.
2. Related hardware:
 - a. Magnetic door switches, to complete the system. Contractor shall be responsible for providing all necessary hardware, and for the complete operation of all related hardware.

2.07 ACCESSORIES (NOT USED)

2.08 MIXES (NOT USED)

2.09 FABRICATION (NOT USED)

2.10 FINISHES (NOT USED)

2.11 SOURCE QUALITY CONTROL

- A. As specified in Section 16750.

PART 3 EXECUTION

3.01 EXAMINATION (NOT USED)

3.02 PREPARATION

- A. Perform a layout check to ensure that adequate access is available for construction, installation, and maintenance of equipment and devices furnished; however, the Contractor is not responsible for furniture. The Contractor shall consult the Owner and Engineer in the design of the monitoring workstation area.

3.03 INSTALLATION

- A. Although expected locations are indicated on the Drawings, all equipment locations, including door contacts and Access Control Keypad shall be field verified with the Engineer.
- B. Installation of the Access Control and Intrusion Detection shall include the appropriate equipment and shall be performed by a factory-trained and certified contractor. The installation shall be completed to this Section and Project Drawings as required by the Owner or prime contractors. The installation shall include the following:
 1. Site planning and system configuration of field hardware. The Contractor shall consult with the Owner and Engineer for final required access level configuration, and other systems programming.
 2. Complete system setup.
 3. Setup of specific network software configuration requirements.
 4. Complete system diagnostics verification.
 5. Complete system operation verification.
 6. Problem reporting and tracking.
 7. Project specific installation log.
 8. Completion of specific Owner acceptance test plans.

9. Formal turnover of the specific project installation documentation to the Owner's water services department.

3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION (NOT USED)

3.06 RE-INSTALLATION (NOT USED)

3.07 FIELD QUALITY CONTROL

- A. Perform acceptance tests to show system is properly installed and that it meets the Specifications and applicable codes. The acceptance tests will include demonstration of the integration to the existing head end, and the capability to be monitored and controlled from other workstations on the Enterprise.
- B. Performance specification requirements:
 1. Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated.
 2. General overall performance of a product is implied where the product is specified for a specific application.
 3. All equipment to be installed per applicable UL listing for that device or component.
- C. Comply with manufacturer's instructions and recommendations for installation of product in the applications indicated. Anchor products securely in place, accurately located and aligned with other work.

3.08 ADJUSTING (NOT USED)

3.09 CLEANING

- A. As specified in Section 16752.

3.10 DEMONSTRATION AND TRAINING

- A. Provide system training on-site by a representative of the SMS manufacturer.
 1. Training shall take place before the system is operational as described in the Project schedule.
 2. A detailed description of the training material shall be included in the submittal package.
 3. All training courses shall enable the attendees to be capable of all normal system operations within their respective positions.
 - a. System maintenance training shall be provided detailing procedures and operations of regular and emergency maintenance to the system.
- B. All levels of system training must provide a syllabus as well as the names and qualifications of each person providing the training. These submittals must be approved by the Owner prior to training beginning.

3.11 PROTECTION

A. As specified in Section 16752.

3.12 SCHEDULES (NOT USED)

3.13 SYSTEM TRAINING (NOT USED)

END OF SECTION

Plot Date: 04-MAR-2014 10:28:07 AM

User: T. Donnell

PlotScale: 2:1

PlotScale: V09055.pen

DesignScript: Carollo Std Pen

ColorTable: gshade.ctb

Model Layout1

LAST SAVED BY: tdonnell

STRUCTURAL NOTES**GENERAL NOTES**

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE OTHER PROJECT DRAWINGS AND SPECIFICATIONS. DRAWINGS PREPARED BY OTHER DISCIPLINES INCLUDE ANCHORS, PIPE SLEEVES, CONDUITS AND ITEMS TO BE EMBEDDED IN OR PASS THROUGH STRUCTURES. CONFIRM SIZE AND LOCATIONS FOR ITEMS AND EQUIPMENT FURNISHED. IN GENERAL, EMBEDMENTS AND PENETRATIONS WITH DIAMETER LESS THAN 12 INCHES ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS.

UNLESS OTHERWISE NOTED OR SPECIFIED, CONSTRUCTION SHALL BE AS INDICATED IN THE STRUCTURAL NOTES AND TYPICAL DETAILS. TYPICAL DETAILS ARE INTENDED TO APPLY AT LOCATIONS DESCRIBED BY THEIR TITLES, EVEN WHEN NOT SPECIFICALLY REFERENCED ON THE DRAWINGS. TYPICAL DETAILS ARE SHOWN ON THE TS DRAWINGS.

VERIFY DIMENSIONS AND CONDITIONS BEFORE BEGINNING WORK. IMMEDIATELY REPORT TO ENGINEER ANY DISCREPANCIES BETWEEN CONDITIONS OR DIMENSIONS AND INFORMATION SHOWN ON THESE DRAWINGS.

SEE ARCHITECTURAL DWGS FOR LOCATIONS AND SIZES OF DOOR AND WINDOW OPENINGS.

PIPING:

SEE MECHANICAL DRAWINGS FOR DETAILS OF PIPE PENETRATIONS AT STRUCTURES. ALL BELOW-GRADE PIPES INSTALLED BELOW SLABS ON GRADE SHALL BE CONCRETE ENCASED UNLESS OTHERWISE NOTED. REFER TO DRAWING BY OTHER DISCIPLINES FOR CONCRETE EQUIPMENT PADS AND PIPE SUPPORTS NOT SHOWN ON THE STRUCTURAL DRAWINGS.

PRESENTATION CONVENTIONS:

WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED SIZES.

PLANS ON THESE DRAWINGS ARE TREATED AS HORIZONTAL SECTIONS.

SCREENED LINEWORK AND TEXT INDICATES EXISTING CONDITIONS. FIELD VERIFY.

IN STRUCTURAL TYPICAL DETAILS, ORIENTATION OF SLAB OR WALL BARS IN EACH MAT OF REINFORCEMENT (WHETHER "LINES" OR "DOTS" ARE CLOSER TO THE FACE OF THE CONCRETE) IS GENERALLY ARBITRARY. SEE DRAWINGS OF EACH STRUCTURE FOR ORIENTATION REQUIRED AT THAT STRUCTURE.

DESIGN CRITERIA:

BUILDING CODE: IBC 2012

RISK CATEGORY III

DEFERRED DESIGN SUBMITTALS ARE LISTED ELSEWHERE ON THIS SHEET.

SEE SPECIFICATION FOR REQUIREMENTS FOR STRUCTURAL INSPECTION, STRUCTURAL TESTING, AND STRUCTURAL OBSERVATION.

SEE DRAWINGS OF INDIVIDUAL STRUCTURES FOR ADDITIONAL DESIGN INFORMATION.

DEAD LOADS:

CALCULATED FOR STRUCTURE SELF WEIGHT.

LIVE LOADS:

FLOOR LIVE LOAD (SEE DRAWINGS): 200 PSF

GRATING AND CHECKERED PLATE: TO MATCH (LL = 100 PSF, UNLESS NOTED).

ROOF LIVE LOAD: 30 PSF (MIN).

SEE DRAWINGS FOR CONCENTRATED AND IMPACT LOADS.

SNOW LOAD:

MIN. ROOF SNOW LOAD: Ps = 90 PSF.

WIND DESIGN DATA: (FACTORED VELOCITY)

BASIC WIND SPEED = 120 MPH (3 SEC GUST) EXPOSURE CATEGORY: B

WINDBORNE DEBRIS REGION: NA

Iw = 1.15

FOR ADDITIONAL WIND DESIGN INFORMATION SEE SPECIFICATION 01614.

FROST DEPTH = 3'-6".

SEISMIC DESIGN DATA:

SITE CLASS: C

SEISMIC DESIGN CATEGORY: D

SPECTRAL RESPONSE ACCELERATIONS, Sa

SHORT PERIOD STRUCTURES, Ss= 0.661g Sds = 0.501g
ONE SECOND PERIOD, S1= 0.223g Sd1 = 0.235g

Ie = 1.25

USE 25% OF SNOW IN COMBINATION WITH SEISMIC.

FOR ADDITIONAL SEISMIC INFORMATION SEE SPECIFICATION 01612.

DESIGN CRITERIA (CONT'D):**CONSTRUCTION LOADS:**

STRUCTURES HAVE BEEN DESIGNED FOR OPERATING LOADS ON COMPLETED FACILITIES. DURING CONSTRUCTION, PROTECT STRUCTURES AS REQUIRED BY SHORING, BALANCING AND BRACING.

GEOTECHNICAL DATA:

REPORTS BY APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.
DATED MARCH 20, 2008 AND MARCH 10, 2011

1. AT-REST SOIL PRESSURE = 65 PCF
2. ACTIVE SOIL PRESSURE = 50 PCF
3. PASSIVE SOIL PRESSURE = 250 PCF
4. ALLOWABLE SOIL BEARING = 3000 PSF
5. FROST DEPTH = 3'-6"

REFER TO ARCHITECTURAL CODE INFORMATION SCHEDULE.**CONSTRUCTION:****EXCAVATION AND BACKFILLING:**

1. EXPOSE AND PREPARE SUBGRADE AS SHOWN ON THE DRAWINGS AND SPECIFIED. OBTAIN ENGINEER'S OBSERVATION OF SUBGRADE SURFACES BEFORE PROCEEDING WITH FOUNDATION CONSTRUCTION.
2. PROVIDE SOIL MODIFICATIONS AS SHOWN IN DIVISION 2 SPECIFICATIONS.
3. UNLESS OTHERWISE NOTED, DO NOT PLACE BACKFILL AGAINST WALLS UNTIL STRUCTURES SUPPORTING THE TOP OF THE WALL ARE IN PLACE, COMPLETE, AND (IN THE CASE OF CONCRETE) HAVE CURED TO THEIR MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH. WHERE BACKFILL MUST BE PLACED AGAINST WALLS BEFORE ROOF SLAB/FLOOR SLABS ARE PLACED ABOVE, PROVIDE BRACING FOR WALLS. BRACING SHALL REMAIN IN PLACE UNTIL ROOF SLAB/FLOOR SLAB ABOVE HAS REACHED THEIR MINIMUM SPECIFIED 28 DAY STRENGTH.

CONCRETE:

1. LOCATION OF CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS SHALL BE APPROVED BY THE ENGINEER.
2. PROVIDE A 3/4 INCH CHAMFER AT ALL EXPOSED EDGES OF CAST-IN-PLACE CONCRETE UNLESS OTHERWISE NOTED ON DRAWINGS.
3. (?) INDICATES CONCRETE CLASS. SEE SECTION 03300. IF NOT OTHERWISE NOTED, CONCRETE SHALL BE CLASS A, C, CE, OR PM CONCRETE AS DEFINED IN SECTION 03300.
4. FINISH CONCRETE IN ACCORDANCE WITH SPECIFICATION 03300 AND 03366 UNLESS OTHERWISE NOTED.
5. SEE TYPICAL DETAIL S101 FOR ADDITIONAL CONCRETE NOTES, INCLUDING COVER REQUIREMENTS.
6. REINFORCEMENT:

- A. REINFORCEMENT SPLICES SHALL BE LAP SPLICES PER TYPICAL DETAIL S101 UNLESS OTHERWISE NOTED.
- B. MAINTAIN MINIMUM 2-INCHES CLEAR COVER BETWEEN REINFORCING STEEL AND CONCRETE EMBEDMENTS, UNLESS OTHERWISE NOTED.
- C. NO WELDING OF REINFORCEMENT BARS WILL BE PERMITTED UNLESS PRIOR APPROVAL IS OBTAINED FROM THE ENGINEER.
- D. UNLESS OTHERWISE NOTED PROVIDE ADDITIONAL REINFORCING AT PENETRATIONS IN CONCRETE IN ACCORDANCE TO TYPICAL DETAIL S180.
7. CONCRETE JOINT NOTES:
 - A. CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATION OTHER THAN THOSE SHOWN ON THE DRAWINGS UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER.
 - B. UNLESS OTHERWISE NOTED, PROVIDE WATERSTOP IN JOINTS AS SHOWN ON THE DRAWINGS, AND AT THE FOLLOWING LOCATIONS:
 - BETWEEN ANY LIQUID CONTAINMENT AREA AND AN ADJACENT DRY AREA OF A STRUCTURE.
 - IN ALL EXTERIOR BELOW GRADE WALLS AND SLABS.
 - C. UNLESS OTHERWISE NOTED, PROVIDE SEALANT IN JOINTS AS SHOWN ON THE DRAWINGS AND AS FOLLOWS:
 - CONSTRUCTION JOINTS: SEALANT NOT REQUIRED.
 - EXPANSION JOINTS: AT BOTH SIDES OF JOINT (EXCEPT AT SOIL SIDE OF A SLAB ON GRADE)
 - D. AT HORIZONTAL JOINTS EXPOSED TO VIEW IN THE FINISHED WORK (NOT INTERIORS OF BASINS), PROVIDE V-GROOVE JOINT.

CONSTRUCTION (CONT'D)**METAL FABRICATIONS:**

1. LADDERS:
A. ALUMINUM, UNLESS OTHERWISE NOTED.
B. CONFORM TO OSHA REQUIREMENTS.

STAIRS:

- A. ALUMINUM, UNLESS OTHERWISE NOTED.
B. CONFORM TO IBC 2012 REQUIREMENTS.

HANDRAILS & GUARDRAILS:

- A. ALUMINUM AS SHOWN ON THE DRAWINGS, UNLESS OTHERWISE NOTED.
B. CONFORM TO IBC 2012 REQUIREMENTS.
C. PROVIDE HANDRAIL AT ENCLOSED SIDES OF STAIRWAYS, AND GUARDRAIL AT OPEN SIDES UNLESS OTHERWISE NOTED.
D. WHERE SIDE-MOUNTED GUARDRAIL IS REQUIRED, SUBMIT MOUNTING DETAILS FOR ENGINEER'S REVIEW.

GRATING:

- A. GRATING AND SEATS OR SUPPORTS SHALL BE OF SAME MATERIAL. PROVIDE ALUMINUM CONSTRUCTION WITH TYPE 304 STAINLESS STEEL FASTENERS UNLESS OTHERWISE NOTED.
- B. UNLESS GRATING IS INDICATED TO BE REMOVABLE, FASTEN GRATING TO SUPPORTS USING TYPICAL DETAIL A414.
- C. FABRICATE GRATING FOR REMOVAL AROUND PIPES AND OTHER PENETRATIONS.
- D. FIELD VERIFY GRATING SUPPORT LOCATIONS BEFORE FABRICATING GRATING. PLACE SUPPORTS WITH CARE TO MAINTAIN TOLERANCES SHOWN OR SPECIFIED.

COVER PLATES:

- A. ALUMINUM. FASTENED TO SUPPORTS WITH STAINLESS STEEL MACHINE SCREWS UNLESS OTHERWISE NOTED.
6. SEE ARCHITECTURAL DRAWINGS FOR DOOR, LOUVER, STAIR SCHEDULE, AND WINDOW LOCATIONS AND DIMENSIONS NOT SHOWN.

SPECIAL INSPECTION:

1. FOR SPECIAL INSPECTION REQUIREMENTS SEE SPECIFICATION 01455.

TYPICAL STRUCTURAL MATERIALS

SEE PROJECT SPECIFICATIONS AND NOTES ON DRAWINGS FOR INDIVIDUAL STRUCTURES FOR DETAILED OR SPECIAL REQUIREMENTS

CAST-IN-PLACE CONCRETE

MINIMUM SPECIFIED COMPRESSIVE STRENGTH AT 28-DAYS, fc:
CONCRETE FILL, THRUST BLOCKS, PIPE AND BEDDING: fc = 2500 PSI
CONCRETE ELECTRICAL DUCT ENCASING: fc = 3000 PSI
CONCRETE FOR STRUCTURES: fc = 4000 PSI

REINFORCING STEEL:

DEFORMED BARS: ASTM A615, OR A706 GRADE 60. SEE 03200.
WELDED WIRE FABRIC: ASTM A185

STRUCTURAL STEEL:

SHAPES - W, T: ASTM A992 (Fy = 50 KSI)
SHAPES - S, M, HP, C, MC, L, PLATE AND BAR: ASTM A36 (Fy = 36 KSI)
PIPE: ASTM A53, GRADE B (Fy = 35 KSI)

HOLLOW STRUCTURAL SECTIONS:

ROUND: ASTM A500, GRADE B (Fy = 42 KSI)
SQUARE AND RECTANGULAR: ASTM A500, GRADE B (Fy = 46 KSI)

ASSEMBLY BOLTS (UNLESS NOTED):

HIGH STRENGTH, ASTM A325

ANCHOR BOLTS (UNLESS NOTED):

CAST-IN (CONCRETE OR MASONRY): ASTM F1554

POST-INSTALLED:

SEE SPECIFICATIONS

WELDING:

E-70XX ELECTRODES UNLESS OTHERWISE NOTED

STRUCTURAL STAINLESS STEEL:

ALL STAINLESS IN CONTACT WITH WATER SHALL BE 316.

SHAPES AND BARS:

ASTM A276, TYPE AS INDICATED.

BOLTS:

F593

WELDING ELECTRODES (UNLESS NOTED):

E304L-15 ELECTRODES FOR TYPE 304L

E316L-15 ELECTRODES FOR TYPE 316L

STRUCTURAL ALUMINUM:

SHAPES: ASTM B308, ALLOY 6061-T6

Sheet: ASTM B209, ALLOY 6061-T6

ASSEMBLY BOLTS (UNLESS NOTED): STAINLESS STEEL

ANCHOR BOLTS (UNLESS NOTED): STAINLESS STEEL

Welding: ER4043 ELECTRODES UNLESS OTHERWISE NOTED.

TYPICAL STRUCTURAL MATERIALS (CONT'D)**MASONRY:**

1. THE COMBINED MASONRY ASSEMBLAGE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE A MINIMUM OF f'm = 1500 PSI.
2. CONCRETE MASONRY UNITS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM C90, CLASS 3 WITH MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI, AND SHALL BE NORMAL WEIGHT TYPE.
3. MORTAR SHALL BE IN ACCORDANCE WITH ASTM C270, TYPE S, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 1800 PSI.
4. GROUT SHALL BE IN ACCORDANCE WITH ASTM C476, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
5. CORNER BOND BEAM, PILASTER, U-BLOCKS, AND ACCESSORY UNITS OF THE SAME COLOR AND TEXTURE SHALL BE PROVIDED.
6. REINFORCEMENT FOR MASONRY SHALL BE SECURED IN PLACE IN CONFORMANCE WITH THE DRAWINGS AND APPLICABLE REQUIREMENTS OF THE 2012 IBC.
7. GROUTING: ALL CELLS SHALL BE SOLID GROUTED.
8. MINIMUM LAP FOR ALL REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE LAP SPLICE TABLE SHOWN IN TYPICAL DETAIL S400.
9. VERTICAL REINFORCING FOR WALLS SHALL BE CONTINUOUS FROM FLOOR TO ROOF WITHOUT SPLICE. USE OPEN END BLOCK AT VERTICAL REINFORCING BARS.
10. REINFORCING IN 12" BLOCK SHALL HAVE 1" MAXIMUM CLEAR COVER FROM THE INSIDE FACE OF CMU.
11. OWNER SHALL PROVIDE CONTINUOUS INSPECTION BY A REGISTERED DEPUTY INSPECTOR AS REQUIRED FOR MASONRY CONSTRUCTION IN ACCORDANCE WITH 2012 IBC, CHAPTER 17.

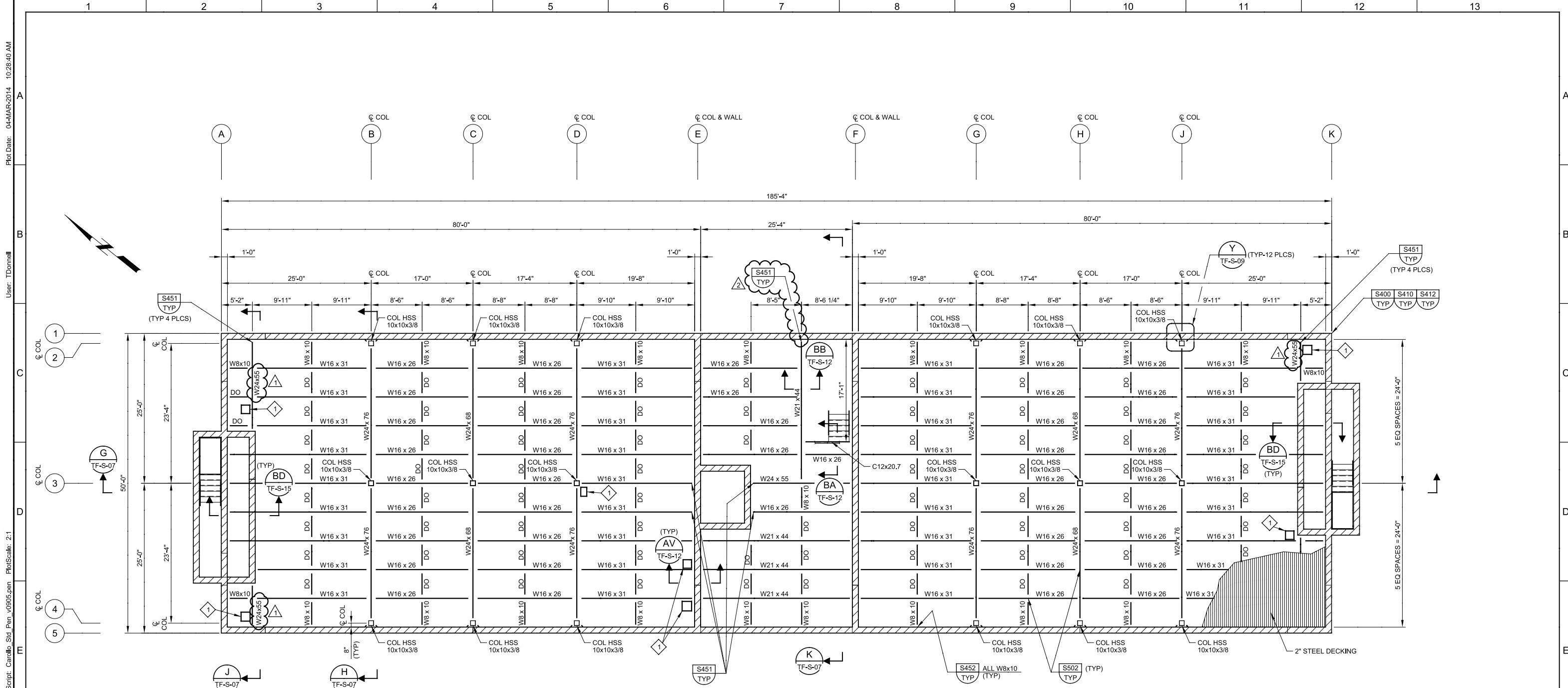
DEFERRED DESIGN SUBMITTALS

AS DEFINED IN SECTION 107.3.4.2 OF THE IBC 2012 DEFERRED DESIGN SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD.

PER SECTION 107.3.4.2 OF THE IBC 2012 THE DEFERRED DESIGN ITEMS LISTED BELOW SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL FOR REVIEW DURING THE CONSTRUCTION PHASE OF THE PROJECT.

DIVISION 3 - CONCRETE
03300 - CONCRETE MIX DESIGN

DIVISION 5 - METALS
05500 - METAL FABRICATION
05216 - OPEN WEB STEEL JOIST FRAMING



C FRAMING PLAN @ TOS 6288.67

SCALE: 1/8" = 1'-0"

FILE: 4650E10_TF-S-105

NOTES:

1. FLOOR COMPOSITE DECKING IS 20 GA. GALVANIZED STEEL WITH 2" HIGH RIBS.
 $I_{(MIN)} = 0.415 \text{ IN}^4/\text{FT}$
 $S_{(MIN)} = 0.355 \text{ IN}^3/\text{FT}$
 $F_y(MIN) = 33 \text{ KSI}$
2. WELD DECKING TO ALL BEAMS WITH 5/8" PUDDLE WELD @ 12" OC.
3. WELD INTERMEDIATE SIDE LAP SEAMS WITH 1-1/2" LONG TOP SEAM WELD @ 12" OC.
4. ALL BEAM BOLT CONNECTIONS SHALL USE 3/4" DIA A325 BOLTS

KEY NOTES:

- 1 FLOOR OPENING ABOVE. SEE DWG TF-S-04.

LAST SAVED BY: idonell		DESIGNED	DRAWN	PROJECT ENGINEER	PROJECT MANAGER	EAST CANYON WATER RECLAMATION FACILITY		VERIFY SCALES	JOB NO.
									4650E10

DESIGNED
DRAWN
CHECKED
DATE
REV

TSD
JDS
**

ORIGINAL
SEALLED BY
DAVID N. HOOLEY
1/28/14
UT 158094

PROJECT ENGINEER
**

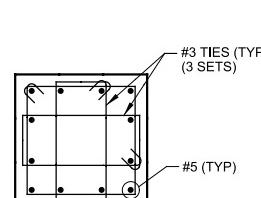
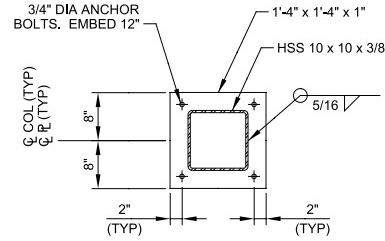
ORIGINAL
SEALLED BY
CRAIG T. ASHCROFT
1/28/14
UT 187341

PROJECT MANAGER
**



EAST CANYON WATER RECLAMATION FACILITY
TRAINING / FLEET FACILITY AND SEISMIC UPGRADES
STRUCTURAL
TRAINING / FLEET FACILITY
FRAMING PLAN @ TOS 6288.67

BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.
0	TF-S-03
1"	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	


M BASE PLATE

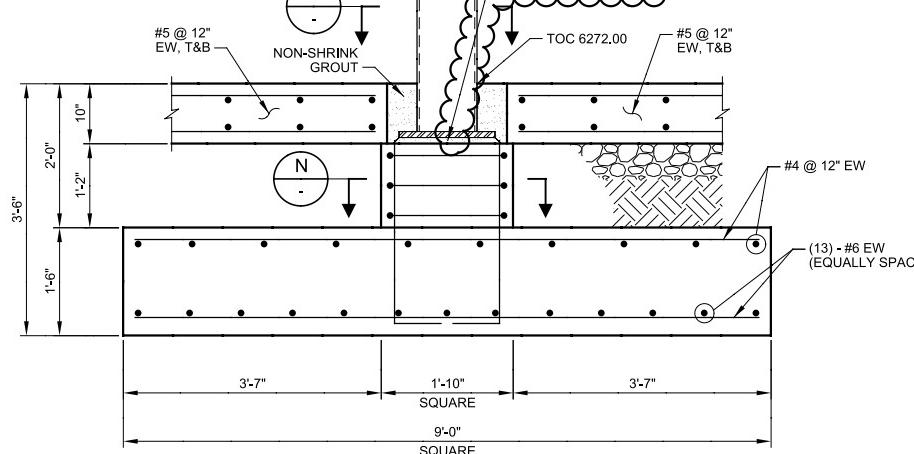
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FILE: 4650E10_TF-S-401

N SECTION

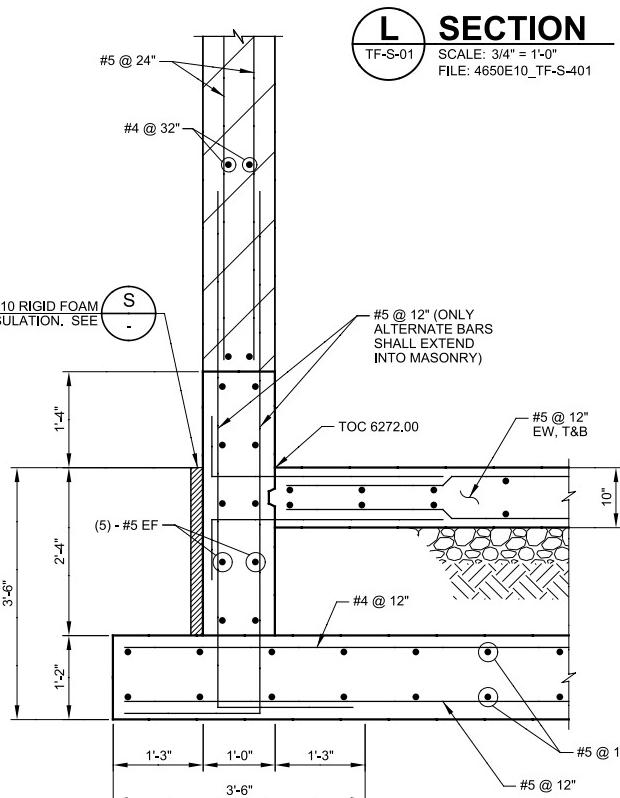
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FILE: 4650E10_TF-S-401


L SECTION

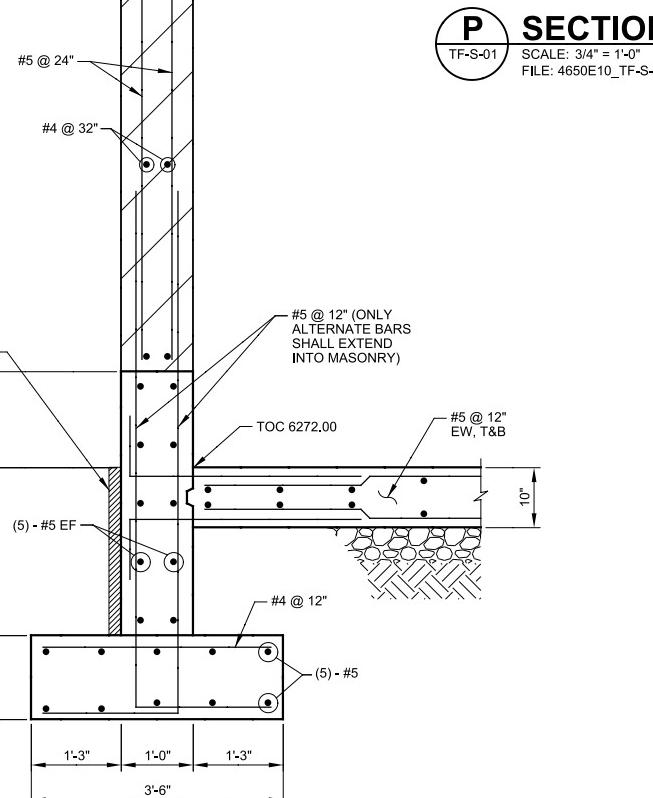
SCALE: 3/4" = 1'-0"

FILE: 4650E10_TF-S-401


BP SECTION

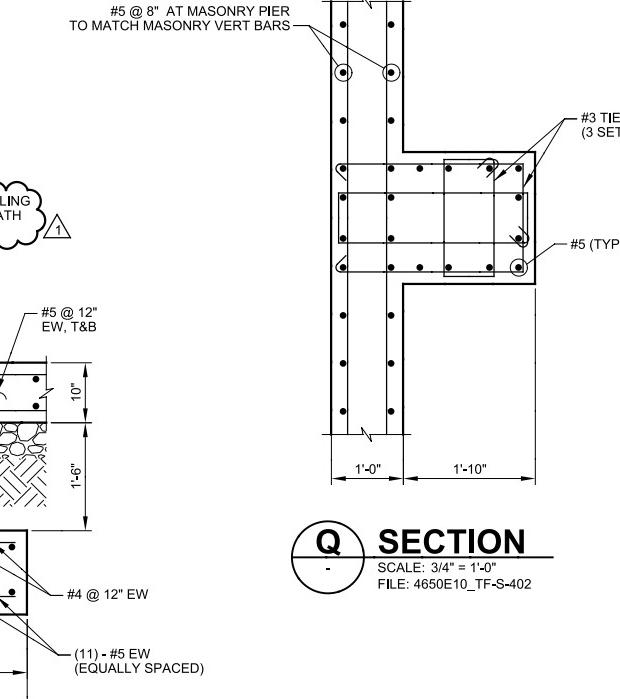
TF-S-01 SCALE: 3/4" = 1'-0"

FILE: 4650E10_TF-S-427


S SECTION

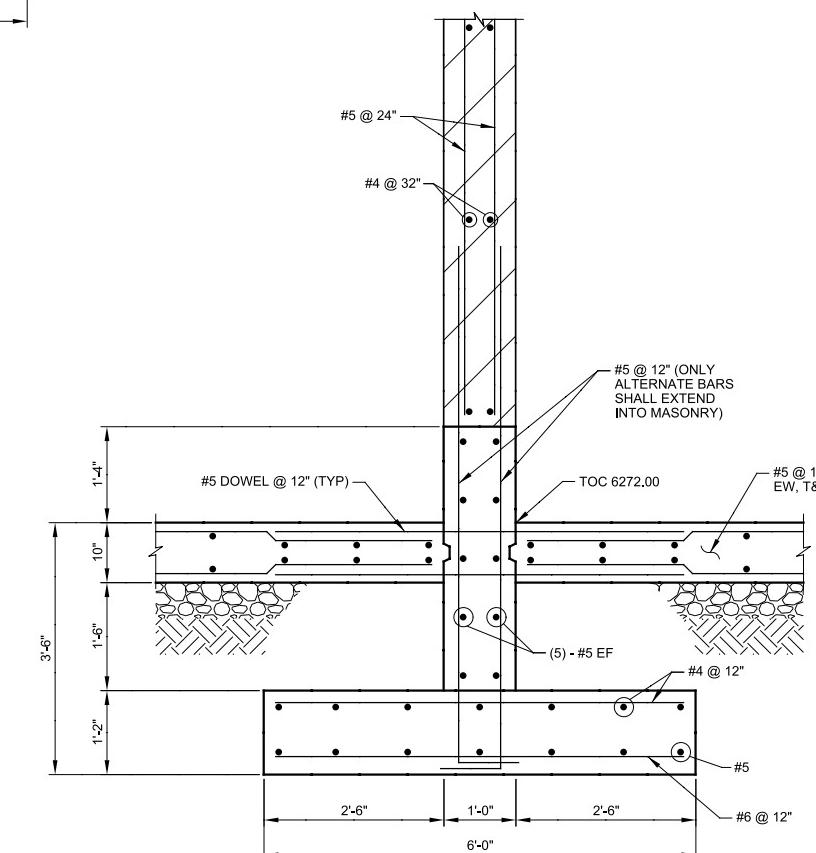
TF-S-01 SCALE: 3/4" = 1'-0"

FILE: 4650E10_TF-S-404


Q SECTION

SCALE: 3/4" = 1'-0"

FILE: 4650E10_TF-S-402


T SECTION

TF-S-01 SCALE: 3/4" = 1'-0"

FILE: 4650E10_TF-S-405

Snyderville Basin Water
Reclamation District

EAST CANYON WATER RECLAMATION FACILITY

TRAINING / FLEET FACILITY AND SEISMIC UPGRADES

STRUCTURAL

TRAINING / FLEET FACILITY
SECTIONS AND DETAILS 1

VERIFY SCALES

BAR IS ONE INCH ON
ORIGINAL DRAWING

DRAWING NO.

TF-S-08

JOB NO.

4650E10

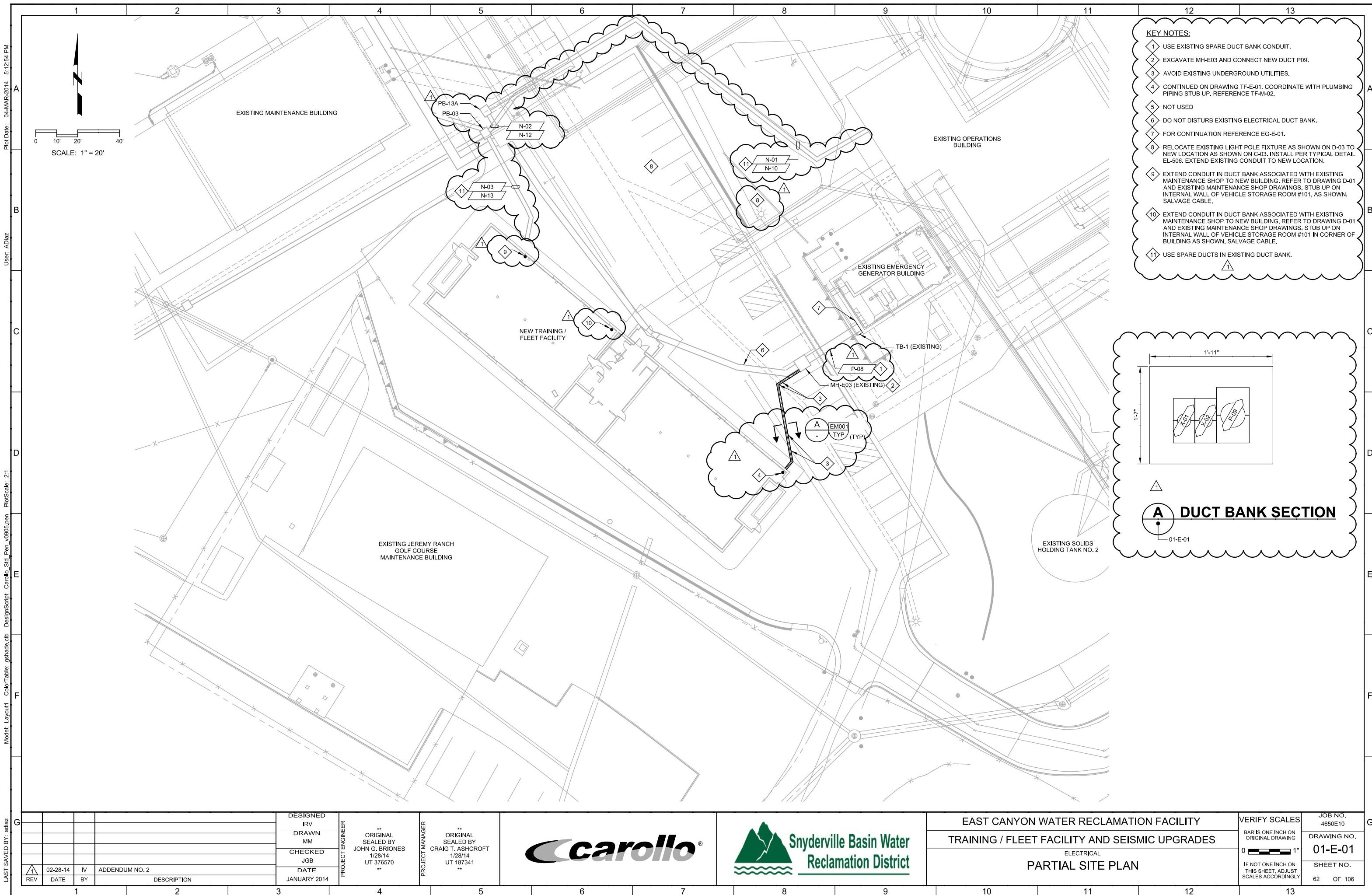
0 1"

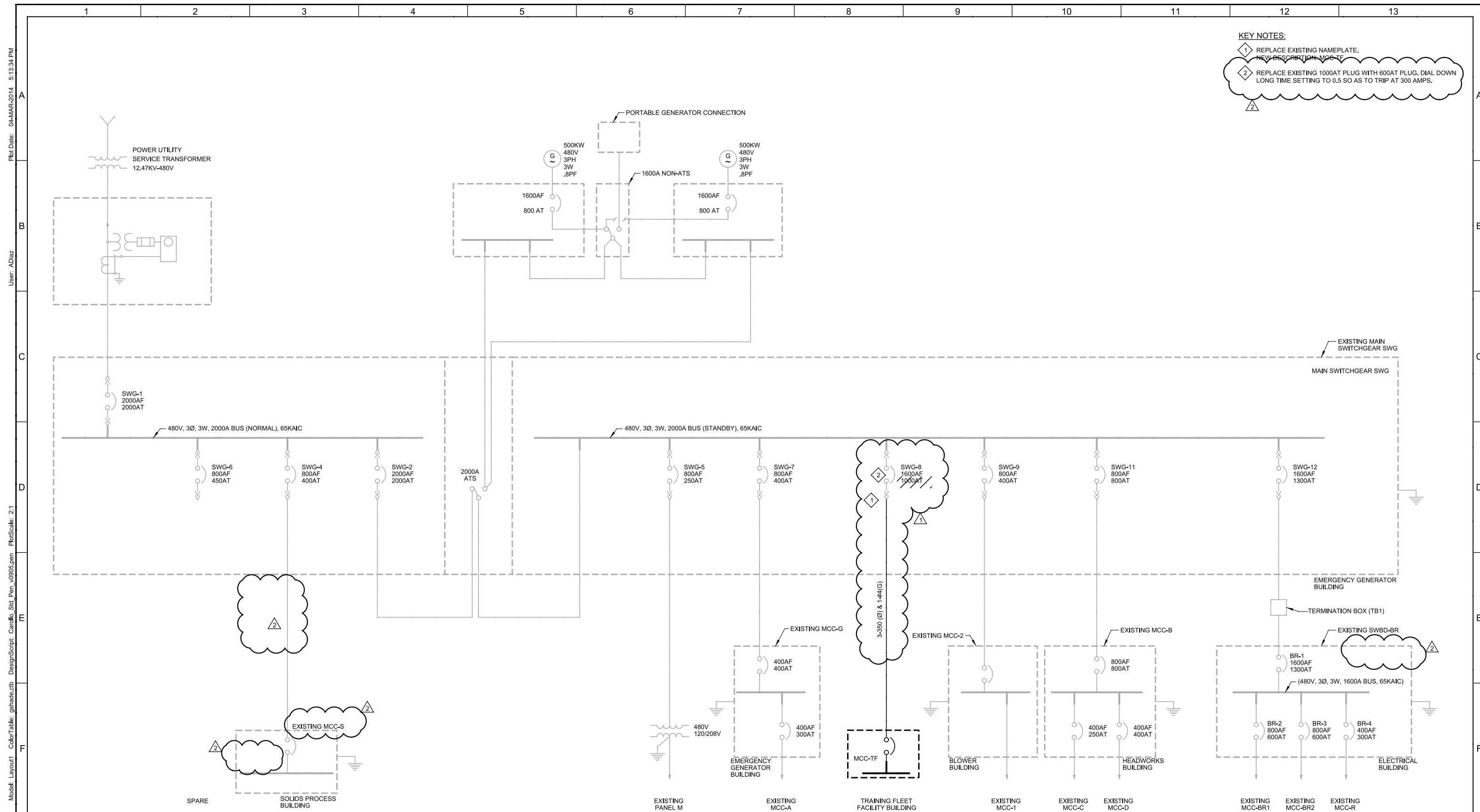
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

SHEET NO.

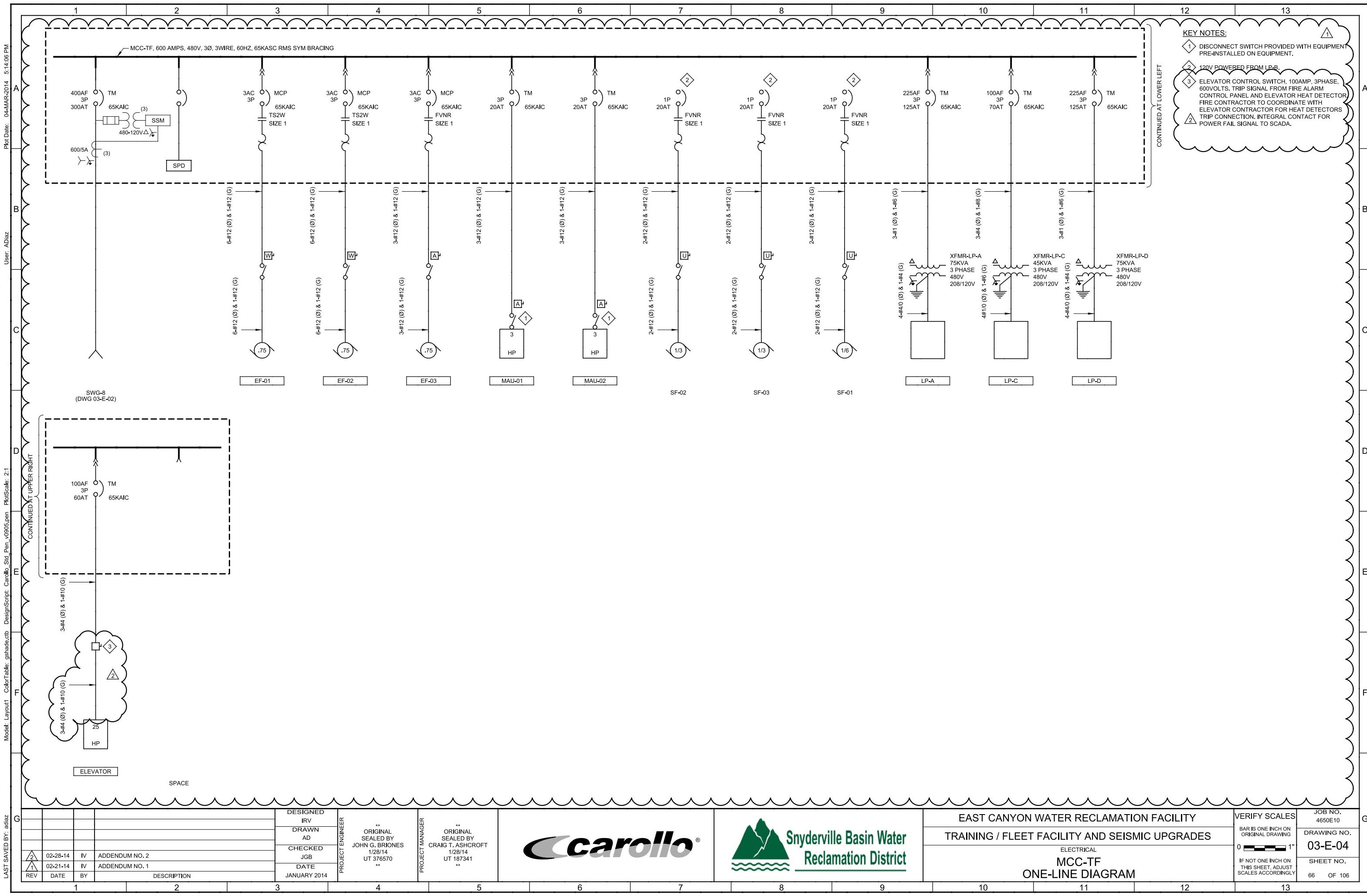
35 OF 106

DESIGNED	DRAWN	PROJECT ENGINEER	PROJECT MANAGER
DHN	TSD	ORIGINAL SEALED BY DAVID N. HOOLEY 1/28/14 UT 158094 **	ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **
CHECKED	DRAFTED	**	**
JDS	JDS		
DATE	DATE		
JANUARY 2014			
REV	DATE	BY	DESCRIPTION
1/3/2014			
ADDENDUM NO. 2			





LAST SAVED BY: adiaz		DESIGNED IRV		DRAWN AD		PROJECT ENGINEER ** ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 36570 **		PROJECT MANAGER ** ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **		EAST CANYON WATER RECLAMATION FACILITY TRAINING / FLEET FACILITY AND SEISMIC UPGRADES ELECTRICAL OVERALL ONE-LINE DIAGRAM				VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 4650E10
REV	DATE	BY	DESCRIPTION	3	4	5	6	7	8	9	10	11	12	13	DRAWING NO. 03-E-02
	02-28-14	IV	ADDENDUM NO. 2												FILE NAME: 4650E1003E002.dgn
	02-21-14	IV	ADDENDUM NO. 1												PROJECT NO. 4650E10



Plot Date: 04-MAR-2014 5:14:40 PM

User: Adiaz

PlotScale: 2:1

Plot v0905.pen

DesignScript: Carollo Std Pen

ColorTable: gshade.ctb

Model Layout1

Last Saved By: adiaz

PANEL LP-A												2/26/2014	
LOCATION:	HVAC RM #218	NEMA:	1	PH A WEIGHTED VA	18880								
VOLTS:	208 / 120	FEED:	BOTTOM	PH B WEIGHTED VA	16973								
PHASE & WIRE:	3PH 4W	MTG.	SURFACE	PH C WEIGHTED VA	16261								
INTERRUPT:	18 KAIC	BUS RATING:	225	MAIN:	CB	EQUIP SIZING VA	56640						
		MAIN RATING	225 AF 225 AT	PANEL AMPS	157.2								
I/C/F	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C/F			
C	ENTRY HALL & CORRIDOR LIGHTS	1080	20A-1P	1	A	2	20A-1P	800	EXTERIOR LIGHTS	C			
C	ENTRY HALL & CORRIDOR LIGHTS	840	20A-1P	3	B	4	20A-1P	720	KITCHEN & COPY ROOM LIGHTS	C			
C	HVAC 218 & UPPER TOILET LIGHTS	660	20A-1P	5	C	6	20A-1P	1520	STORAGE ROOM 220 LIGHTS	C			
C	HVAC 210 & 212 LIGHTS	640	20A-1P	7	A	8	20A-1P	880	HVAC 2018 OFFICES 202-205 LIGHTS	C			
C	LOWER TOILETS & LAB LIGHTS	860	20A-1P	9	B	10	20A-1P	350	VEHICLE STORAGE 101 LIGHTS	C			
C	VEHICLE STORAGE 107 LIGHTS	350	20A-1P	11	C	12	20A-1P		SPARE	C			
	SPARE		20A-1P	13	A	14	20A-1P	960	TRAINING ROOM LIGHTS	C			
	SPARE		20A-1P	15	B	16	20A-1P	240	TRAINING ROOM LIGHTS (DOWNLIGHTS)	C			
C	EXTERIOR GUTTER HEATER - NORTH WEST	1250	20A-2P	17	C	18	20A-2P	1250	EXTERIOR GUTTER HEATER - NORTH EAST	C			
C	1250			19	A	20		1250		C			
C	EXTERIOR GUTTER HEATER - SOUTH WEST	450	20A-2P	21	B	22	20A-2P	450	EXTERIOR GUTTER HEATER - SOUTH EAST	C			
C	450			23	C	24		450		C			
C	EXTERIOR GUTTER HEATER - ENTRANCE	250	20A-2P	25	A	26	20A-1P		SPARE				
C	250			27	B	28	20A-1P		SPARE				
C	WEST EMERGENCY & EXIT LIGHTS	145	20A-1P	29	C	30	20A-1P	140	EAST EMERGENCY & EXIT LIGHTS	C			
F	PANEL LP-B	5993	150A-3P	31	A	32	40A-2P	4000	KITCHEN RANGE	I			
F		7773		33	B	34	20A-1P	4000		I			
F	8493			35	C	36	20A-1P		SPARE				
	SPARE		20A-1P	37	A	38	20A-1P		SPARE				
	SPARE		20A-1P	39	B	40	20A-1P		SPARE				
	SPARE		20A-1P	41	C	42	20A-1P		SPARE				

PANEL LP-D												2/26/2014	
LOCATION:	VEHICLE STORAGE RM # 101	NEMA:	1	PH A WEIGHTED VA	15391								
VOLTS:	208 / 120	FEED:	TOP	PH B WEIGHTED VA	15038								
PHASE & WIRE:	3PH 4W	MTG.	SURFACE	PH C WEIGHTED VA	14323								
INTERRUPT:	18 KAIC	BUS RATING:	225	MAIN:	CB	EQUIP SIZING VA	46173						
		MAIN RATING	225 AF 225 AT	PANEL AMPS	128.2								
I/C/F	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C/F			
C	ACU-01 OUTDOOR	2454	40A-2P	1	A	2	40A-2P	2454	ACU-02 OUTDOOR	C			
C	ACU-05 OUTDOOR	2454	40A-2P	3	B	4	40A-2P	2454	ACU-03 OUTDOOR	C			
C	ACU-06 OUTDOOR	2454	30A-2P	5	C	6	30A-2P	1882	ACU-04 OUTDOOR	C			
C	ACU-01 INDOOR	1882	30A-2P	7	A	8	30A-2P	1882	ACU-05 INDOOR	C			
C	ACU-02 INDOOR	1882	30A-2P	11	C	12	30A-2P	1882	ACU-06 INDOOR	C			
C	ACU-03 INDOOR	1882	30A-2P	13	A	14	30A-2P	1364	ACU-04 INDOOR	C			
	SPARE		20A-1P	17	B	18	20A-1P	1705	ACU-05 INDOOR	C			
	SPARE		20A-1P	19	A	20	20A-1P	1705	ACU-06 INDOOR	C			
	SPARE		20A-1P	21	B	22	20A-1P		SPARE				
	SPARE		20A-1P	23	C	24	20A-1P		SPARE				

KEY NOTES:
1 LOCKABLE CIRCUIT BREAKER.

PANEL LP-B												2/26/2014	
LOCATION:	HVAC RM # 218	NEMA:	1	PH A WEIGHTED VA	5993								
VOLTS:	208 / 120	FEED:	BOTTOM	PH B WEIGHTED VA	7773								
PHASE & WIRE:	3PH 4W	MTG.	SURFACE	PH C WEIGHTED VA	8493								
INTERRUPT:	18 KAIC	BUS RATING:	225	MAIN:	MLO	EQUIP SIZING VA	25479						
		MAIN RATING	225 AF 225 AT	PANEL AMPS	70.7								
I/C/F	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C/F			
I	COPY ROOM PLOTTER RECEPTACLE	1600	20A-1P	1	A	2	20A-1P	360	HVAC CONTROL PANEL	I			
I	COPY ROOM PHOTOCOPY RECEPTACLE	1600	20A-1P	3	B	4	20A-1P		SPARE				
I	COPY RM & KITCHEN RECEPTACLES	900	20A-1P	5	C	6	20A-1P	900	TRAINING ROOM & HVAC 210 RECEPTACLES	I			
I	TRAINING ROOM RECEPTACLES	360	20A-1P	7	A	8	20A-1P	720	OFFICE 202-205 RECEPTACLES	I			
I	OFFICE 202-205 RECEPTACLES	720	20A-1P	9	B	10	20A-1P	180	HVAC 201 OFFICE 202-205 RECEPTACLES	I			
I	HVAC 220 & WEST CORRIDOR RECEPTACLES	1080	20A-1P	11	C	12	20A-1P	1080	HVAC 212 & CORRIDOR RECEPTACLES	I			
I	HVAC 218 RECEPTACLES	360	20A-1P	13	A	14	20A-1P	360	KITCHEN COUNTER RECEPTACLE	I			
I	HVAC 218 RECEPTACLES	180	20A-1P	15	B	16	20A-1P	1080	KITCHEN COUNTER RECEPTACLE	I			
I	SPARE		20A-1P	17	C	18	20A-1P	1080	KITCHEN COUNTER RECEPTACLE	I			
I	KITCHEN BELOW SINK	180	20A-1P	19	A	20	20A-1P	500	KITCHEN RANGE HOOD EXHAUST FAN	I			
I	KITCHEN BELOW COUNTER DISHWASHER	1200	20A-1P	21	B	22	20A-1P		SPARE				
I	KITCHEN BELOW COUNTER REFRIGERATORS	500	20A-1P	23	C	24	20A-1P	590	WATER COOLER #1	I			
	SPARE		20A-1P	25	A	26	20A-1P	590	WATER COOLER #2</td				

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LIGHTING</td><td>WALL MOUNT</td><td>V-SERIES</td><td>120</td><td>150W</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>														ITEM	DESCRIPTION			MOUNTING METHOD	LAMP		LUMINAIRE SPECIFICATIONS			A	L	U	W	X		QUANTITY	TYPE	MANUFACTURER		CATALOG	VOLTS	LOAD (WATTS)								A	2'	2-F32W/T8 FLUORESCENT	LITHONIA LIGHTING	RECESSED	VT SERIES	120	80W								A1	3'	3-F32W/T8 FLUORESCENT	LITHONIA LIGHTING	RECESSED	VT SERIES	120	120W								B	2'	2-F17W/T8 FLUORESCENT	LITHONIA LIGHTING	RECESSED	VT SERIES	120	40W								B1	3'	3-F17W/T8 FLUORESCENT	LITHONIA LIGHTING	RECESSED	VT SERIES	120	60W								C	1' X 4'	2-F32W/T8 FLUORESCENT	LITHONIA LIGHTING	CEILING MOUNT	CB SERIES	120	80W								D	6"	LED	LITHONIA LIGHTING	RECESSED (T BAR FRAME)	REALITY SERIES	120	14.2W								E	SINGLE FACE EXIT SIGN, UL DAMP LOCATIONS LISTED, WITH GREEN EXIT LETTERS, SELF CONTAINED SEALED MAINTENANCE FREE NICKEL CADMIUM BATTERIES WITH 90 MINUTES CAPACITY.	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DESIGNED IRV	DRAWN AD	PROJECT ENGINEER ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 3/6570 **	PROJECT MANAGER ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **				EAST CANYON WATER RECLAMATION FACILITY					VERIFY SCALES	JOB NO. 4650E10			
02-28-14	IV	ADDENDUM NO. 2							TRAINING / FLEET FACILITY AND SEISMIC UPGRADES					BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 05-E-01	
02-21-14	IV	ADDENDUM NO. 1							ELECTRICAL					IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 71 OF 106	
REV	DATE	BY	DESCRIPTION	JANUARY 2014						LUMINAIRE AND DISCONNECT SCHEDULE						
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User:	A-Diaz												
Plot Scale:	2:1												
Design Script:	Carollo Std Pen v0905.jen												
Color Table:	gshade.ctb												
Model Layout:													
CONDUIT SCHEDULE AREA 0						3/4/14							
Snyderville Training and Fleet Facility Building													
Snyderville Basin Reclaim Water District													
CONDUIT			CONDUCTORS			GROUND							
NUMBER	DWG	SIZE	#	SIZE	TYPE	#	SIZE	TYPE	DESCRIPTION		CONNECTING SEGMENTS		
L-16	TF-E-01	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	ELEVATOR CONTROL PANEL ELEVATOR LIGHT & FAN >> POWER: ELEVATOR LIGHT & FAN			
L-18	TF-E-01	0.75"	2	#8	XHHW-2	1	#10	XHHW-2	FR: TO: 2 #8	ACU-01 OUTDOOR VIA DISCONNECT JUNCTION BOX >> POWER: ACU-01 OUTDOOR			
L-19	TF-E-01	0.75"	2	#10	XHHW-2	1	#10	XHHW-2	FR: TO: 2 #10	ACU-06 OUTDOOR VIA DISCONNECT JUNCTION BOX >> POWER: ACU-06 OUTDOOR			
L-20	TF-E-01	0.75"	2	#8	XHHW-2	1	#10	XHHW-2	FR: TO: 2 #8	ACU-05 OUTDOOR VIA DISCONNECT JUNCTION BOX >> POWER: ACU-05 OUTDOOR			
L-21	TF-E-01	1.5"	4	#8 #10	XHHW-2 XHHW-2	3	#10	XHHW-2	FR: TO: 2 #8 2 #10 2 #8	JUNCTION BOX LP-D >> POWER: ACU-01 OUTDOOR >> POWER: ACU-06 OUTDOOR >> POWER: ACU-05 OUTDOOR	L-18 L-19 L-20		
L-22	TF-E-02	0.75"	2	#8	XHHW-2	1	#10	XHHW-2	FR: TO: 2 #8	ACU-02 OUTDOOR VIA DISCONNECT JUNCTION BOX >> POWER: ACU-02 OUTDOOR	L-25		
L-23	TF-E-02	0.75"	2	#10	XHHW-2	1	#10	XHHW-2	FR: TO: 2 #10	ACU-03 OUTDOOR VIA DISCONNECT JUNCTION BOX >> POWER: ACU-03 OUTDOOR	L-25		
L-24	TF-E-02	0.75"	2	#10	XHHW-2	1	#10	XHHW-2	FR: TO: 2 #10	ACU-04 OUTDOOR VIA DISCONNECT JUNCTION BOX >> POWER: ACU-04 OUTDOOR	L-25		
L-25	TF-E-02 TF-E-05	1"	2 4	#8 #10	XHHW-2 XHHW-2	3	#10	XHHW-2	FR: TO: 2 #8 2 #10 2 #10	JUNCTION BOX LP-D >> POWER: ACU-02 OUTDOOR >> POWER: ACU-03 OUTDOOR >> POWER: ACU-04 OUTDOOR	L-22 L-23 L-24		
L-31	TF-E-05 TF-E-01	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	CARBON MONOXIDE SENSOR WEST CONDUIT T >> POWER: CARBON MONOXIDE SNSR	L-33		
L-32	TF-E-05 TF-E-01 TF-E-02	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	CARBON MONOXIDE SENSOR EAST CONDUIT T >> POWER: CARBON MONOXIDE SNSR	L-33		
L-33	TF-E-01 TF-E-05	0.75"	4	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12 2 #12	CONDUIT T LP-B >> POWER: CARBON MONOXIDE SNSR >> POWER: CARBON MONOXIDE SNSR	L-31 L-32		
L-34	TF-E-05	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	LP-B HVAC CONTROL PANEL >> POWER: HVAC CONTROL PANEL			
L-42	TF-E-05	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	SF-02 VIA DISCONNECT MCC-TF >> POWER: SF-02			
L-43	TF-E-05	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	DAMPER VIA DISCONNECT CONDUIT T >> POWER: DAMPER	L-48		
L-45	TF-E-06	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	SF-03 VIA DISCONNECT MCC-TF >> POWER: SF-03			
L-46	TF-E-06	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	DAMPER VIA DISCONNECT CONDUIT T >> POWER: DAMPER	L-48		
L-48	TF-E-05	0.75"	4	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12 2 #12	CONDUIT T HVAC CONTROL PANEL >> POWER: DAMPER >> POWER: DAMPER	L-43 L-46		
CONDUIT SCHEDULE AREA 0						3/4/14							
Snyderville Training and Fleet Facility Building													
Snyderville Basin Reclaim Water District													
CONDUIT			CONDUCTORS			GROUND							
NUMBER	DWG	SIZE	#	SIZE	TYPE	#	SIZE	TYPE	DESCRIPTION		CONNECTING SEGMENTS		
L-50	TF-E-05	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	EXTERNAL GUTTER HEATER NORTH WEST CONDUIT T >> POWER: GUTTER HEATER	L-52		
L-51	TF-E-05	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	EXTERNAL GUTTER HEATER SOUTH WEST CONDUIT T >> POWER: GUTTER HEATER	L-52		
L-52	TF-E-05	0.75"	4	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12 2 #12	CONDUIT T CONDUIT T >> POWER: GUTTER HEATER >> POWER: GUTTER HEATER	L-57 L-50 L-51		
L-53	TF-E-06	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	EXTERNAL GUTTER HEATER NORTH EAST CONDUIT T >> POWER: GUTTER HEATER	L-56		
L-54	TF-E-06	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	EXTERNAL GUTTER HEATER SOUTH EAST CONDUIT T >> POWER: GUTTER HEATER	L-56		
L-55	TF-E-05 TF-E-06	0.75"	3	#8	XHHW-2	1	#10	XHHW-2	FR: TO: 3 #8	RANGE LP-A >> POWER: RANGE			
L-56	TF-E-05 TF-E-06	0.75"	4	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12 2 #12	CONDUIT T CONDUIT T >> POWER: GUTTER HEATER >> POWER: GUTTER HEATER	L-57 L-53 L-54		
L-57	TF-E-05	0.75"	8	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12 2 #12 2 #12 2 #12	CONDUIT T LP-A >> POWER: GUTTER HEATER >> POWER: GUTTER HEATER >> POWER: GUTTER HEATER >> POWER: GUTTER HEATER	L-52 L-52 L-56 L-56		
L-58	TF-E-01	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	GUTTER HEATER MAIN ENTRANCE LP-A >> POWER: GUTTER HEATER			
L-59	TF-E-01	0.75"	2	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 2 #12	EXTERNAL AUTOMATIC DOOR #07 HEADER INTERNAL AUTOMATIC DOOR #08 HEADER >> POWER: AUTOMATIC DOOR			
L-60	TF-E-01	0.75"	4	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 4 #12	INTERNAL AUTOMATIC DOOR #08 HEADER LP-C >> POWER: AUTOMATIC DOOR			
P-01	TF-E-01	0.75"	8	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 6 #12 2 #12	EF-01 MCC-TF >> POWER: EF-01 >> POWER: WINDING HEATER			
P-02	TF-E-01	0.75"	5	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 3 #12 2 #12	EF-03 MCC-TF >> POWER: EF-03 >> POWER: WINDING HEATER			
P-03	TF-E-02	0.75"	8	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 6 #12 2 #12	EF-02 MCC-TF >> POWER: EF-02 >> POWER: WINDING HEATER			
P-04	TF-E-05	0.75"	3	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 3 #12	MAU-01 DISCONNECT MCC-TF >> POWER: MAU-01			
P-05	TF-E-06	0.75"	3	#12	XHHW-2	1	#12	XHHW-2	FR: TO: 3 #12	MAU-02 DISCONNECT MCC-TF >> POWER: MAU-02			
P-06	TF-E-01	1"	3	#4	XHHW-2	1	#10	XHHW-2	FR: TO: 3 #4	ELEVATOR POWER PANEL ELEVATOR DISCONNECT >> POWER: ELEVATOR	P-13		
P-07	EG-E-01	2.5"	3	350	XHHW-2	1	#4	XHHW-2	FR: TO: 0 #250 0 #250	STANDBY SWITCHGEAR SWG-08 TB-1 PULL BOX POWER MCC-TF			

	DESIGNED IRV	PROJECT ENGINEER	** ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 376570 **	PROJECT MANAGER	** ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **
	DRAWN AD				
	CHECKED JGB				
	DATE JANUARY 2014				



EAST CANYON WATER RECLAMATION FACILITY

TRAINING / FLEET FACILITY AND SEISMIC UPGRADES

ELECTRICAL
CONDUIT
SCHEDULE

	VERIFY SCALES	JOB NO. 4650E10
S	BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 05-E-03
	0  1"	SHEET NO.
	IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	73 OF 106

CONDUIT SCHEDULE AREA 0

3/4/14

Snyderville Training and Fleet Facility Building

Snyderville Basin Reclaim Water District

CONDUIT		CONDUCTORS			GROUND					
NUMBER	DWG	SIZE	#	SIZE	TYPE	#	SIZE	TYPE	DESCRIPTION	CONNECTING SEGMENTS
P-08	01-E-01 EG-E-01	4"	3	350	XHHW-2	1	#4	XHHW-2	FR: TB-1 PULL BOX TO: MH-E03 VIA EXISTING CONDUIT 3 350 >> POWER: MCC-TF	
P-09	01-E-01	4"	3	350	XHHW-2	1	#4	XHHW-2	FR: MH-E03 TO: PULL BOX TRAINING FACILITY BUILDING 3 350 >> POWER: MCC-TF	
P-10	01-E-01 TF-E-05	2.5"	3	350	XHHW-2	1	#4	XHHW-2	FR: PULL BOX TRAINING FACILITY BUILDING TO: MCC-TF 3 350 >> POWER: MCC-TF	
P-11	TF-E-05	1.5"	3	#1	XHHW-2	1	#6	XHHW-2	FR: MCC-TF TO: TRANSFORMER LP-A 3 #1 >> POWER: TRANSFORMER LP-A	
P-12	TF-E-05	2.5"	4	#4/0	XHHW-2	1	#4	XHHW-2	FR: TRANSFORMER LP-A TO: LP-A 4 #4/0 >> POWER: FEEDER #1 LP-A	
P-13	TF-E-05	1"	3	#4	XHHW-2	1	#10	XHHW-2	FR: ELEVATOR DISCONNECT TO: MCC-TF 3 #4 >> POWER: ELEVATOR	P-06
P-14	TF-E-05	2"	4	#1/0	XHHW-2	1	#8	XHHW-2	FR: LP-A TO: LP-B 4 #1/0 >> POWER: LP-B	
P-15	TF-E-05	1"	3	#4	XHHW-2	1	#8	XHHW-2	FR: MCC-TF TO: TRANSFORMER LP-C 3 #4 >> POWER: LP-C	
P-16	TF-E-05	1.5"	3	#1	XHHW-2	1	#6	XHHW-2	FR: MCC-TF TO: TRANSFORMER LP-D 3 #1 >> POWER: LP-D	
P-22	TF-E-01 TF-E-05	2"	4	#1/0	XHHW-2	1	#6	XHHW-2	FR: TRANSFORMER LP-C TO: LP-C 4 #1/0 >> POWWR: LP-C	
P-23	TF-E-01 TF-E-05	2.5"	4	#4/0	XHHW-2	1	#4	XHHW-2	FR: TRANSFORMER LP-D TO: LP-D 4 #4/0 >> POWER: LP-D	
N01 EXISTING	01-E-01	ERROR				1	#14	XHHW-2	FR: OPERATIONS BUILDING TELCO BACKBOARD TO: PB-13A 1 MATCHING TYPE PHONE CABLE	
N02 EXISTING	01-E-01	ERROR				1	#14	XHHW-2	FR: PB-13A TO: PB-3 1 MATCHING TYPE PHONE CABLE	
N03	01-E-01	ERROR				1	#14	XHHW-2	FR: PB-3 TO: PULL BOX (TELEPHONE) 1 MATCHING TYPE PHONE CABLE	
N04	TF-E-09	ERROR				1	#14	XHHW-2	FR: PULL BOX (TELEPHONE) TO: TELCO PANEL VIA FLOOR PENETRATION 1 MATCHING TYPE PHONE CABLE	
N11 EXISTING	01-E-01	1.5"	2	12/FO		1	#14	XHHW-2	FR: OPERATIONS BUILDING IT PANEL TO: PB-13A 2 12/FO >> SIGNAL: DATA FIBER CABLE	
N12 EXISTING	01-E-01	1.5"	2	12/FO		1	#14	XHHW-2	FR: PB-13A TO: PB-3 2 12/FO >> SIGNAL: DATA FIBER CABLE	
N13	01-E-01	1.5"	2	12/FO		1	#14	XHHW-2	FR: PB-3 TO: FIBER PULL BOX 2 12/FO >> SIGNAL: DATA FIBER CABLE	
N14	TF-E-09	1.5"	2	12/FO		1	#14	XHHW-2	FR: FIBERPULL BOX TO: IT PANEL 2 12/FO >> SIGNAL: DATA FIBER CABLE	
X-01	01-E-01 TF-E-02	2"	1	PULL	ROPE				FR: MH-E03 TO: STUB UP VEHICLE STORAGE 107 1 PULL >> SPARE CONDUIT	
X-02	01-E-01 TF-E-02	2"	1	PULL	ROPE				FR: MH-E03 TO: STUB UP VEHICLE STORAGE 107 1 PULL >> SPARE CONDUIT	

Plot Date: 04-MAR-2014 5:16:52 PM

User: Diaz

Plot Scale: 2:1

DesignScript: v0905.pen

ColorTable: gshade.ctb

Model Layout1

Layout2

Layout3

Layout4

Layout5

Layout6

Layout7

Layout8

Layout9

Layout10

02-28-14	IV	ADDENDUM NO. 2	
02-21-14	IV	ADDENDUM NO. 1	
REV	DATE	BY	DESCRIPTION

PROJECT NO. 4650E10

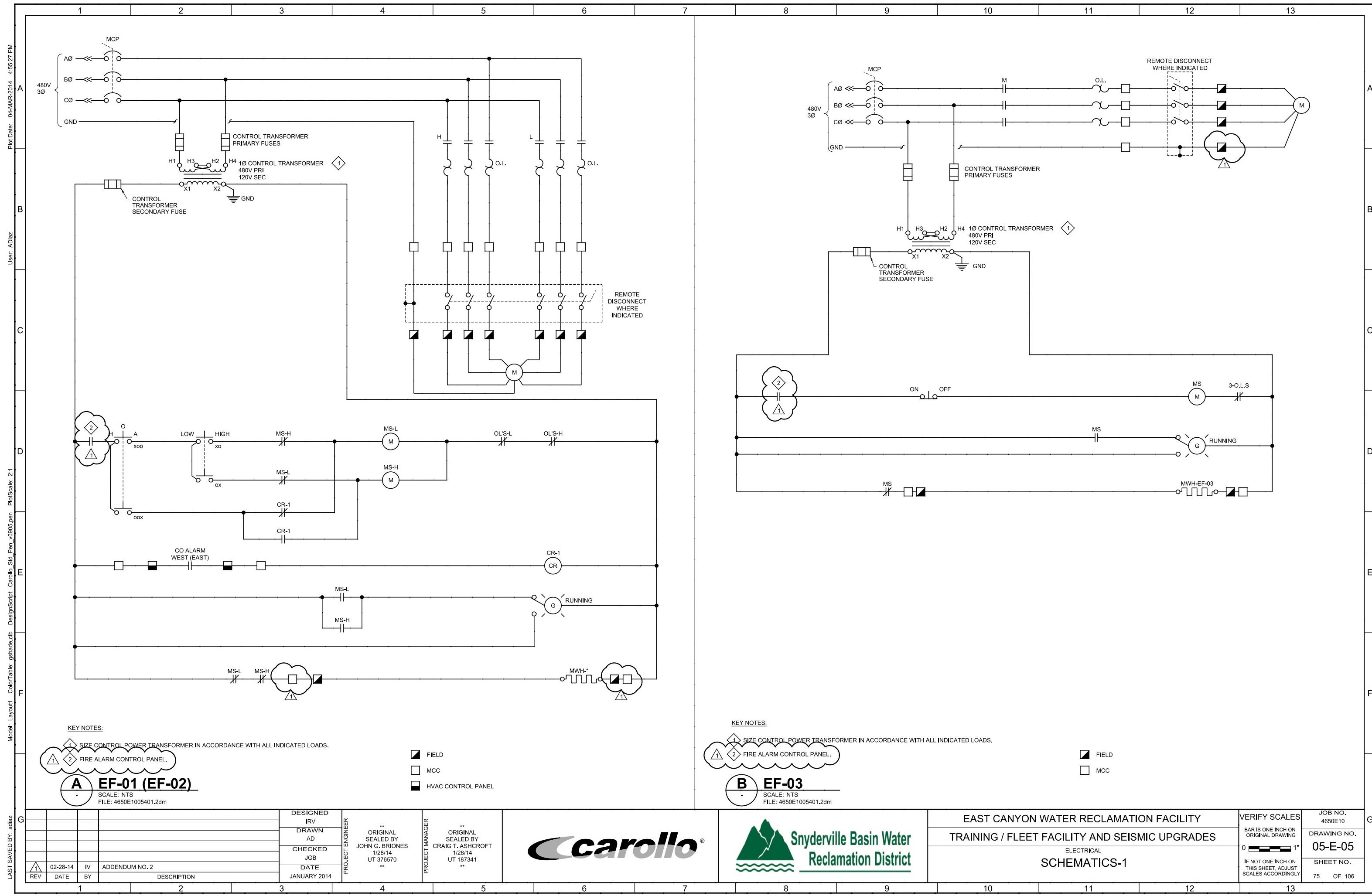
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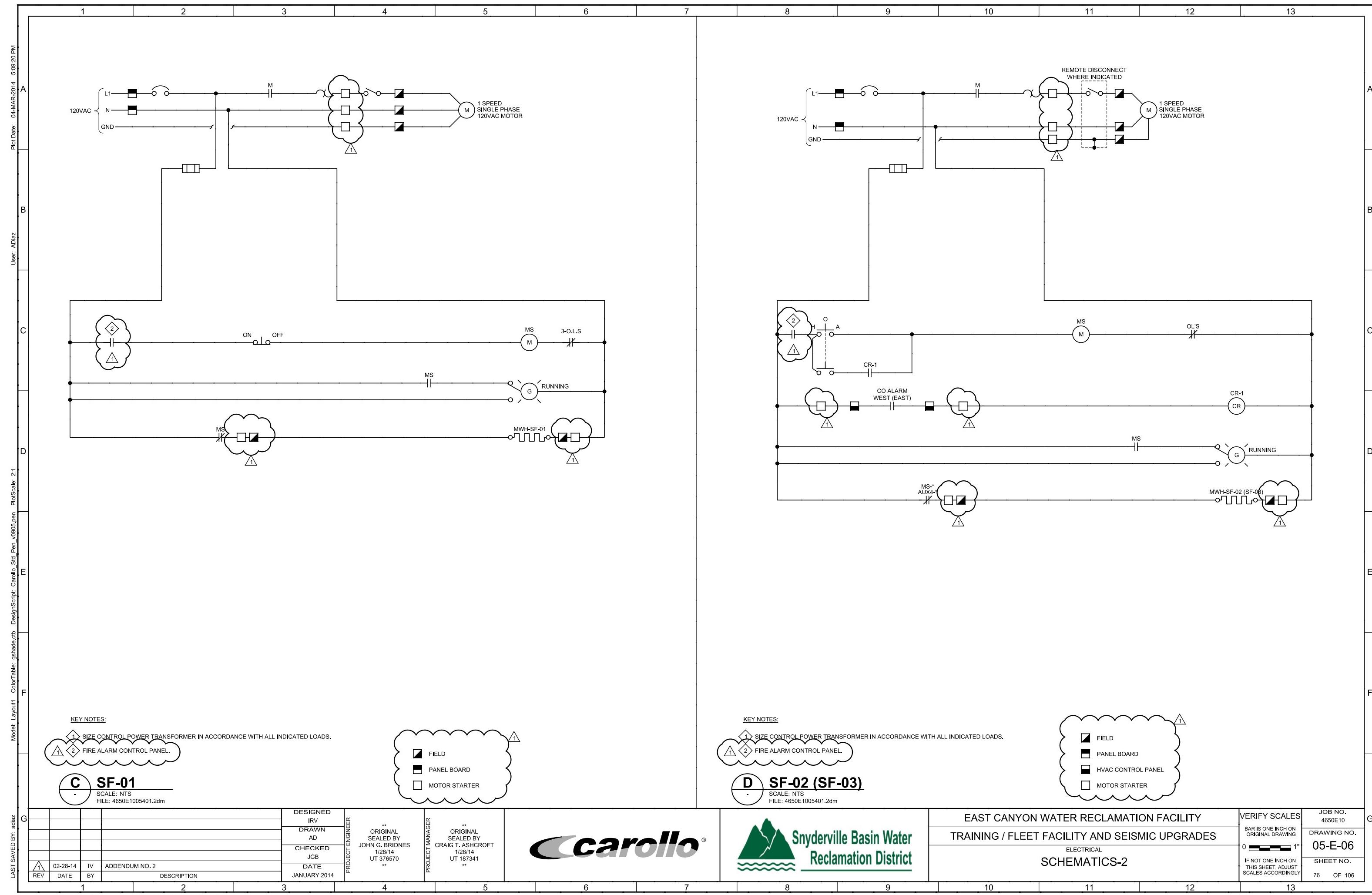


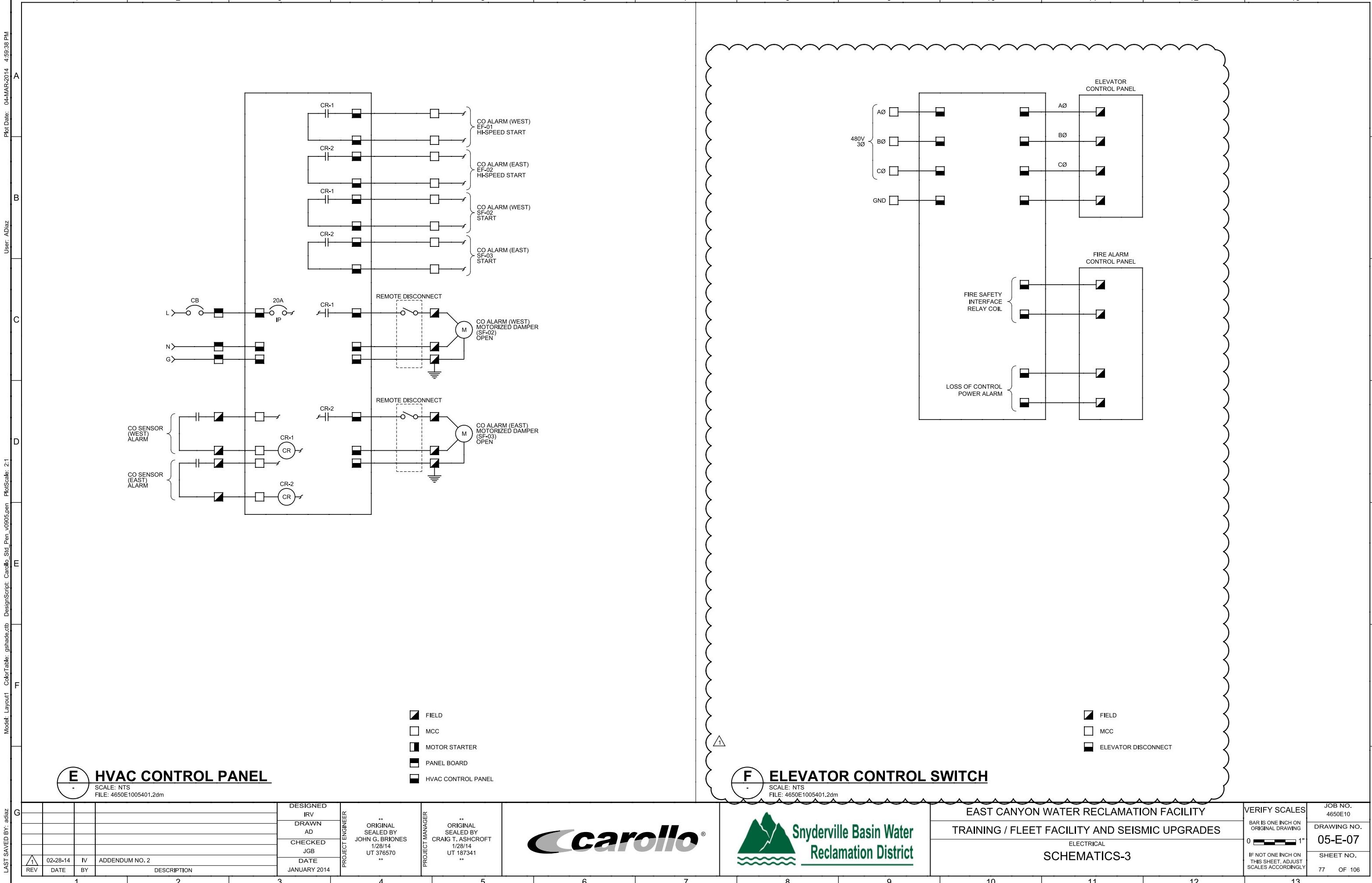
EAST CANYON WATER RECLAMATION FACILITY
TRAINING / FLEET FACILITY AND SEISMIC UPGRADES
ELECTRICAL
CONDUIT SCHEDULE

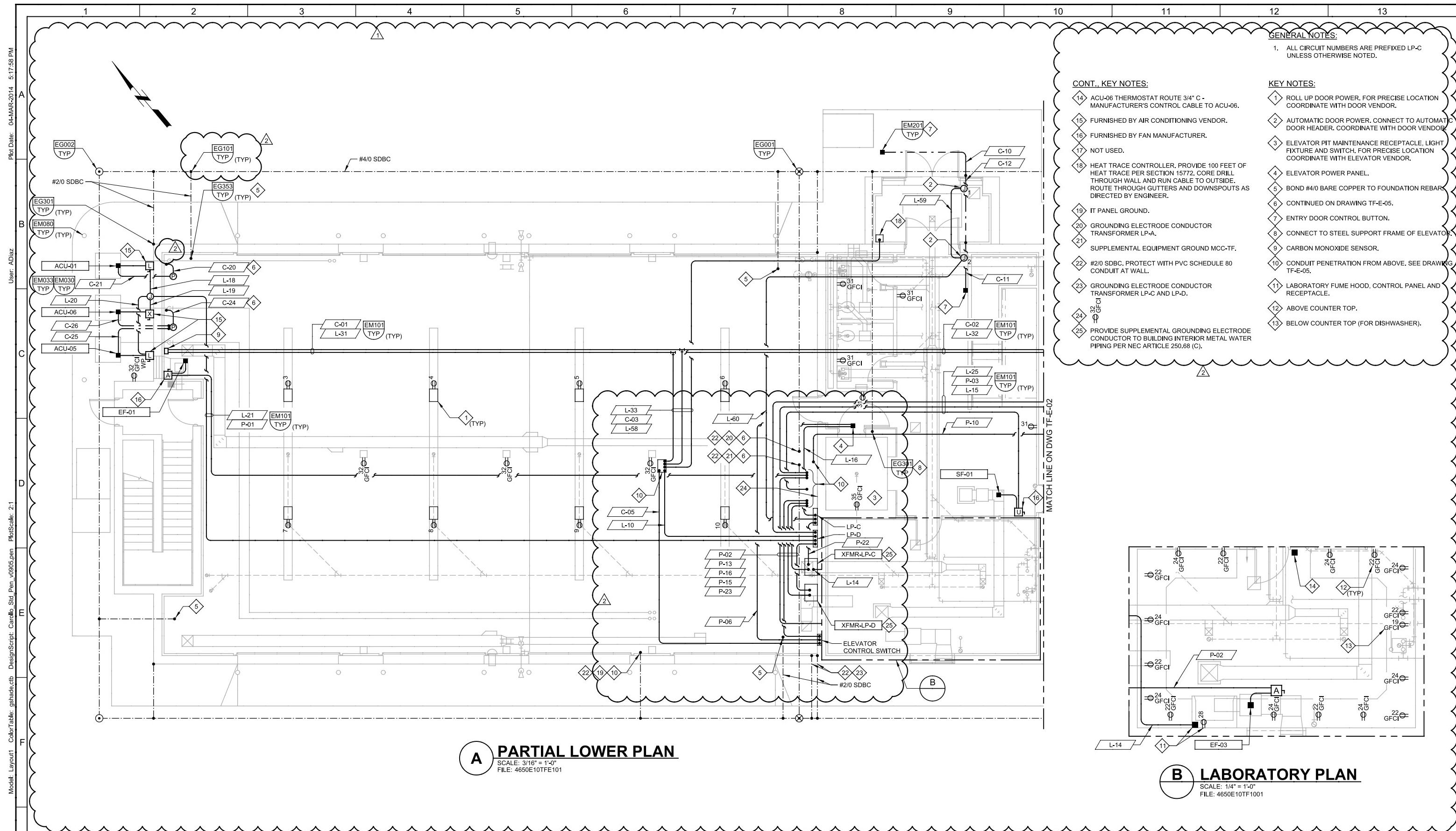
VERIFY SCALES
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY
DRAWING NO.
05-E-04
SHEET NO.
74 OF 106

1 2 3 4 5 6 7 8 9 10 11 12 13

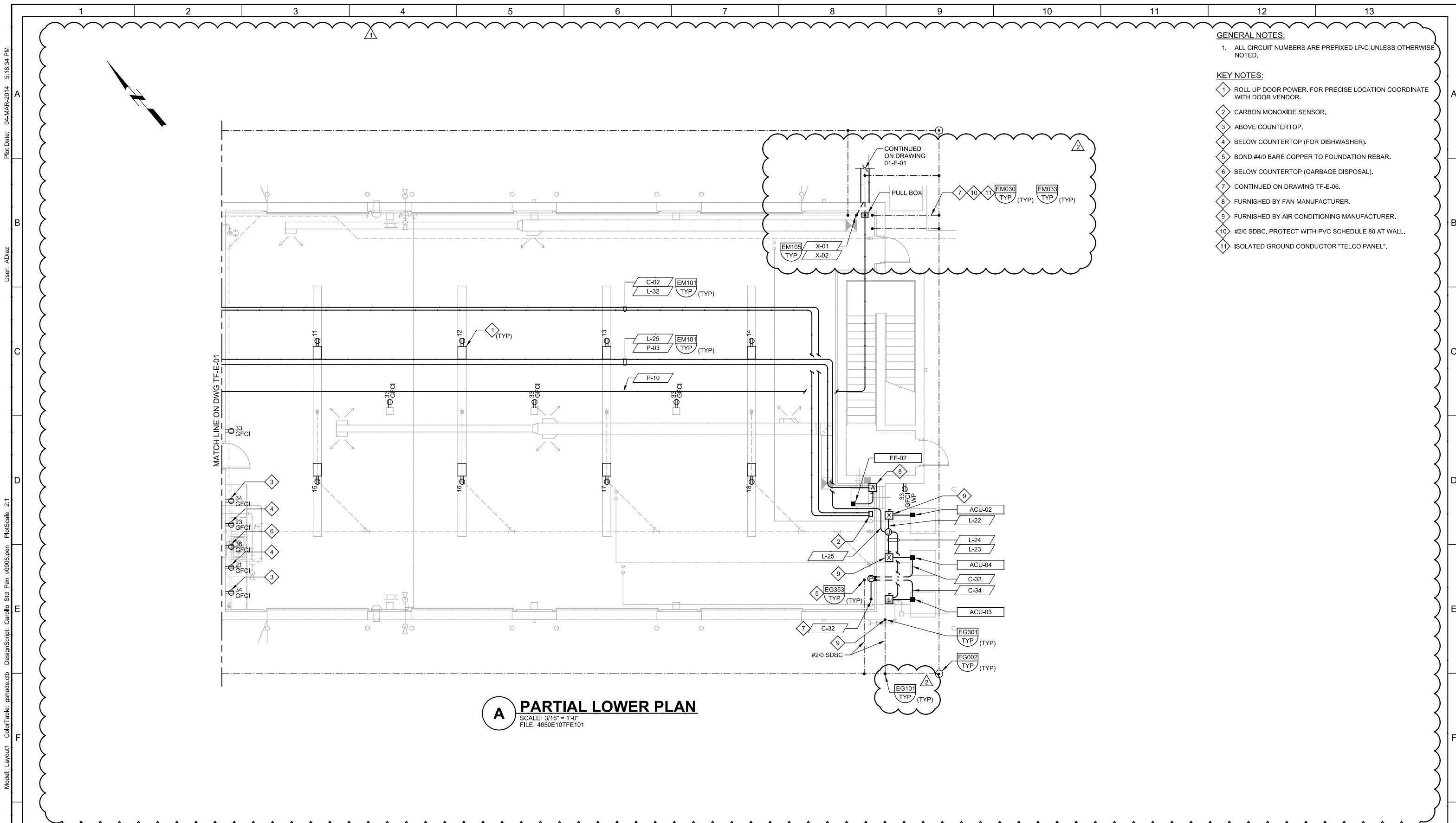








G			DESIGNED IRV	DRAWN AD	PROJECT ENGINEER ** ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 376570 **	PROJECT MANAGER ** ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **	EAST CANYON WATER RECLAMATION FACILITY TRAINING / FLEET FACILITY AND SEISMIC UPGRADES ELECTRICAL TRAINING/FLEET FACILITY PARTIAL LOWER PLAN - POWER & CONTROL			VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 4650E10	
G			LAST SAVED BY: adiac	DATE: 02-28-14	ADDENDUM NO. 2	DATE: 02-21-14	ADDENDUM NO. 1	DESCRIPTION	DATE: JANUARY 2014	BY:	DRAWING NO. TF-E-01	
G			REV	DATE	BY						IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 78 OF 106
1	2	3	4	5	6	7	8	9	10	11	12	13



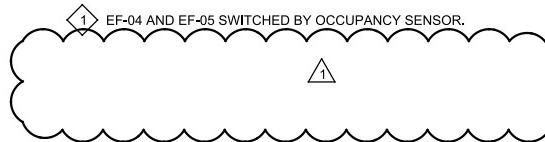
DESIGNED				DRAWN		PROJECT ENGINEER		PROJECT MANAGER		EAST CANYON WATER RECLAMATION FACILITY				VERIFY SCALES		JOB NO.	
02-28-14	IV	ADDENDUM NO. 2		AD		** JOHN G. BRIONES 1/28/14 UT 36570		** CRAIG T. ASHCROFT 1/28/14 UT 187341 **		TRAINING / FLEET FACILITY AND SEISMIC UPGRADES				BAR IS ONE INCH ON ORIGINAL DRAWING		4650E10	
02-21-14	IV	ADDENDUM NO. 1		JGB						ELECTRICAL				DRAWING NO.		TF-E-02	
REV	DATE	BY	DESCRIPTION	DATE	JANUARY 2014	PROJECT	MANAGER	PROJECT	MANAGER	TRAINING/FLEET FACILITY				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		SHEET NO.	
G										PARTIAL LOWER PLAN - POWER & CONTROL				79	OF 106		
LAST SAVED BY: adiaz																	
carollo	Snyderville Basin Water Reclamation District																
1	2	3		4	5	6	7	8	9	10	11	12	13				

1 2 3 4 5 6 7 8 9 10 11 12 13

GENERAL NOTES:

- ALL CIRCUITS PREFIXED LP-A UNLESS OTHERWISE NOTED.

KEY NOTES:



Plot Date: 04-MAR-2014 5:19:08 PM

User: Diaz

Plot Scale: 2:1

Model Layout1

ColorTable: gshade.ctb

DesignScript: v0905.pen

Carollo Std Pen

gshade.ctb

carollo

Project

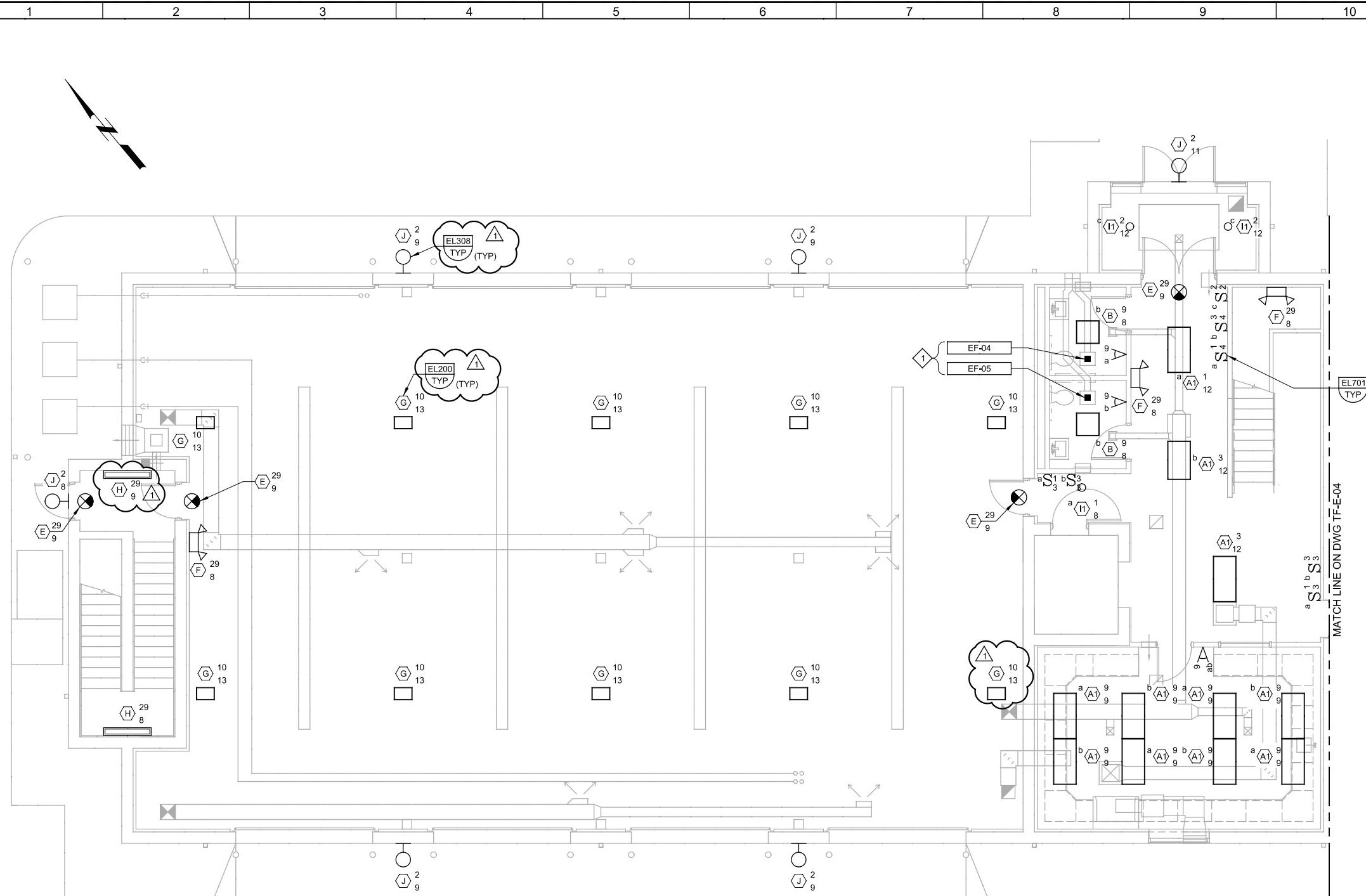
4650E10

4650E10

4650E10

4650E10

4650E10



A LOWER PLAN

SCALE: 3/16" = 1'-0"

FILE: 4650E10TFE101

LAST SAVED BY: adiaz		DESIGNED		DRAWN		PROJECT ENGINEER		CHECKED		VERIFY SCALES	
02-28-14	IV	ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 376570	**	AD	**	ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341	**	JGB	**	BAR IS ONE INCH ON ORIGINAL DRAWING	JOB NO. 4650E10
DATE	BY	DATE	JANUARY 2014	PROJECT MANAGER	**	DATE	JANUARY 2014	DATE	JANUARY 2014	DRAWING NO. TF-E-03	**
REV	DATE	DESCRIPTION		PROJECT		REV	DATE	DESCRIPTION		SHEET NO. 80 OF 106	

carollo



EAST CANYON WATER RECLAMATION FACILITY

TRAINING / FLEET FACILITY AND SEISMIC UPGRADES

ELECTRICAL

TRAINING/FLEET FACILITY
LOWER PLAN - LIGHTING

VERIFY SCALES

IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

0 1"

1 2 3 4 5 6 7 8 9 10 11 12 13

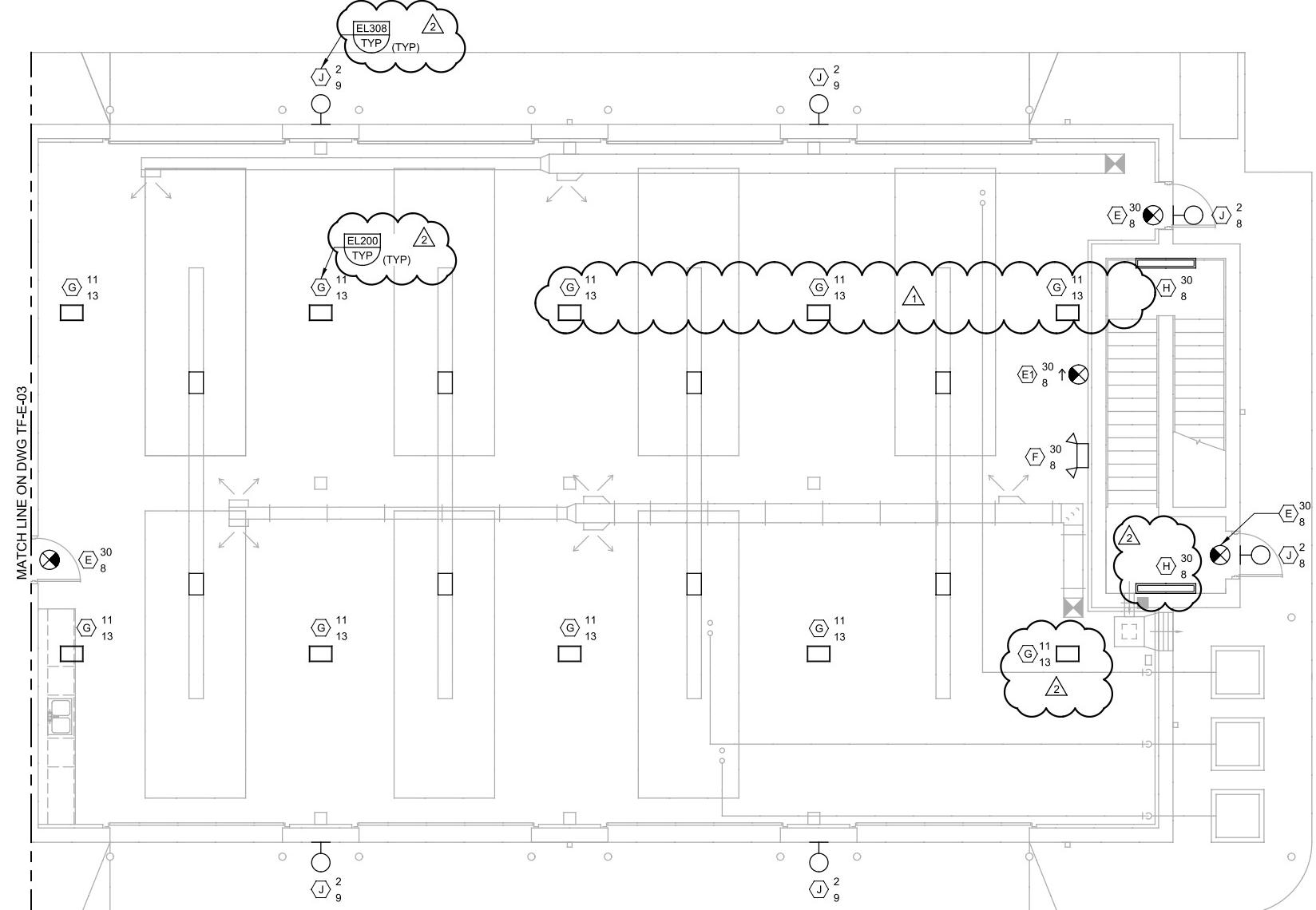
GENERAL NOTES:

1. ALL CIRCUITS PREFIXED LP-A UNLESS OTHERWISE NOTED.

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PlotScale: 2:1
DesignScript: v0905.pen
ColorTable: gshade.ctb
Model Layout1: ColorTable1: gshade.ctb

LAST SAVED BY: adiaz



A LOWER PLAN

SCALE: 3/16" = 1'-0"
FILE: 4650E10TFE101

DESIGNED		DRAWN		PROJECT ENGINEER		PROJECT MANAGER	
02-28-14	IV	ADDENDUM NO. 2		** JOHN G. BRIONES AD	** CRAIG T. ASHCROFT 1/28/14 UT 3/6570 **	** CRAIG T. ASHCROFT 1/28/14 UT 187341 **	
02-21-14	IV	ADDENDUM NO. 1		JGB DATE JANUARY 2014			
REV	DATE	BY	DESCRIPTION				



EAST CANYON WATER RECLAMATION FACILITY

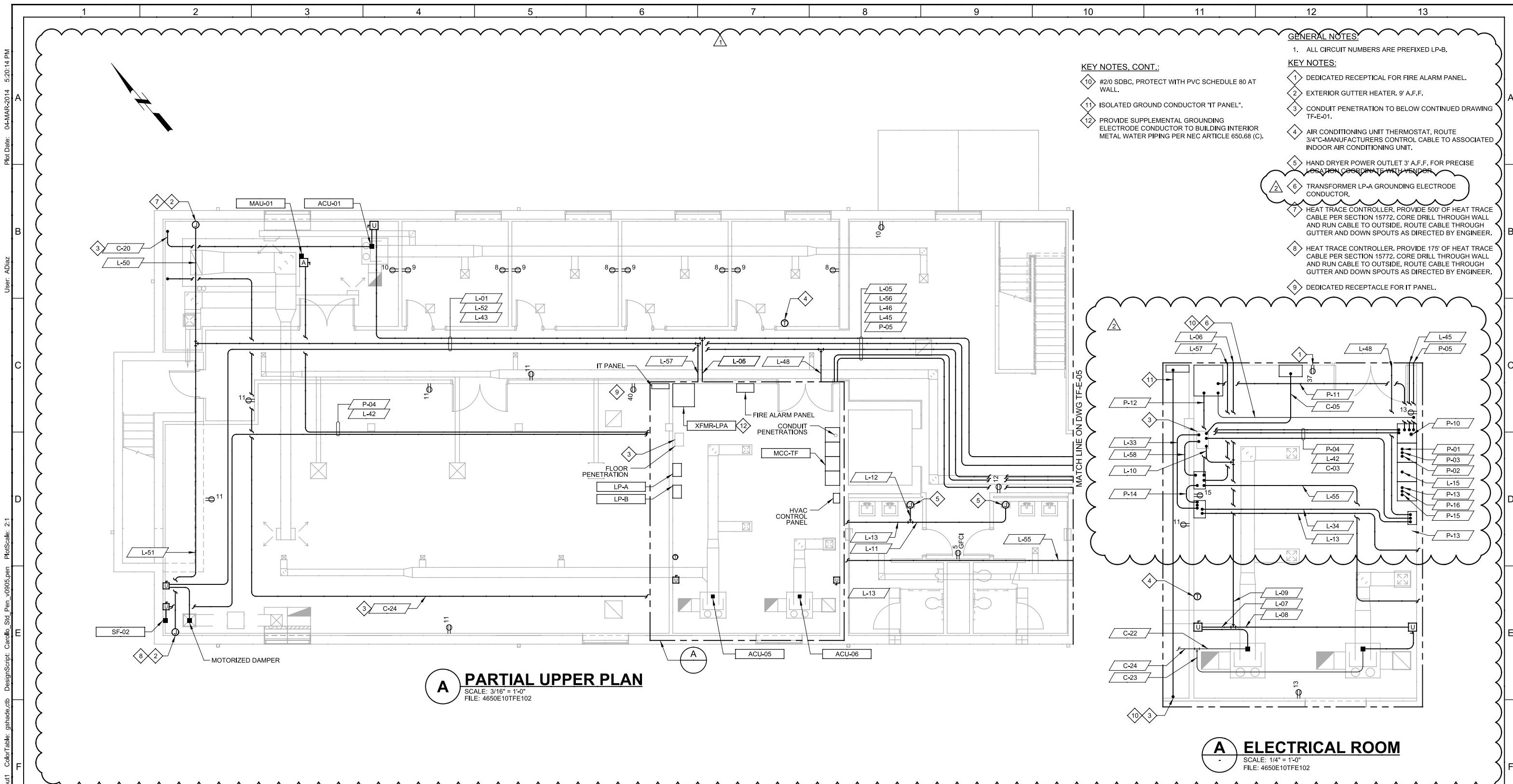
TRAINING / FLEET FACILITY AND SEISMIC UPGRADES

ELECTRICAL

TRAINING/FLEET FACILITY
LOWER PLAN - LIGHTING

VERIFY SCALES	JOB NO.
BAR IS ONE INCH ON ORIGINAL DRAWING	4650E10
0 1"	DRAWING NO. TF-E-04

IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY



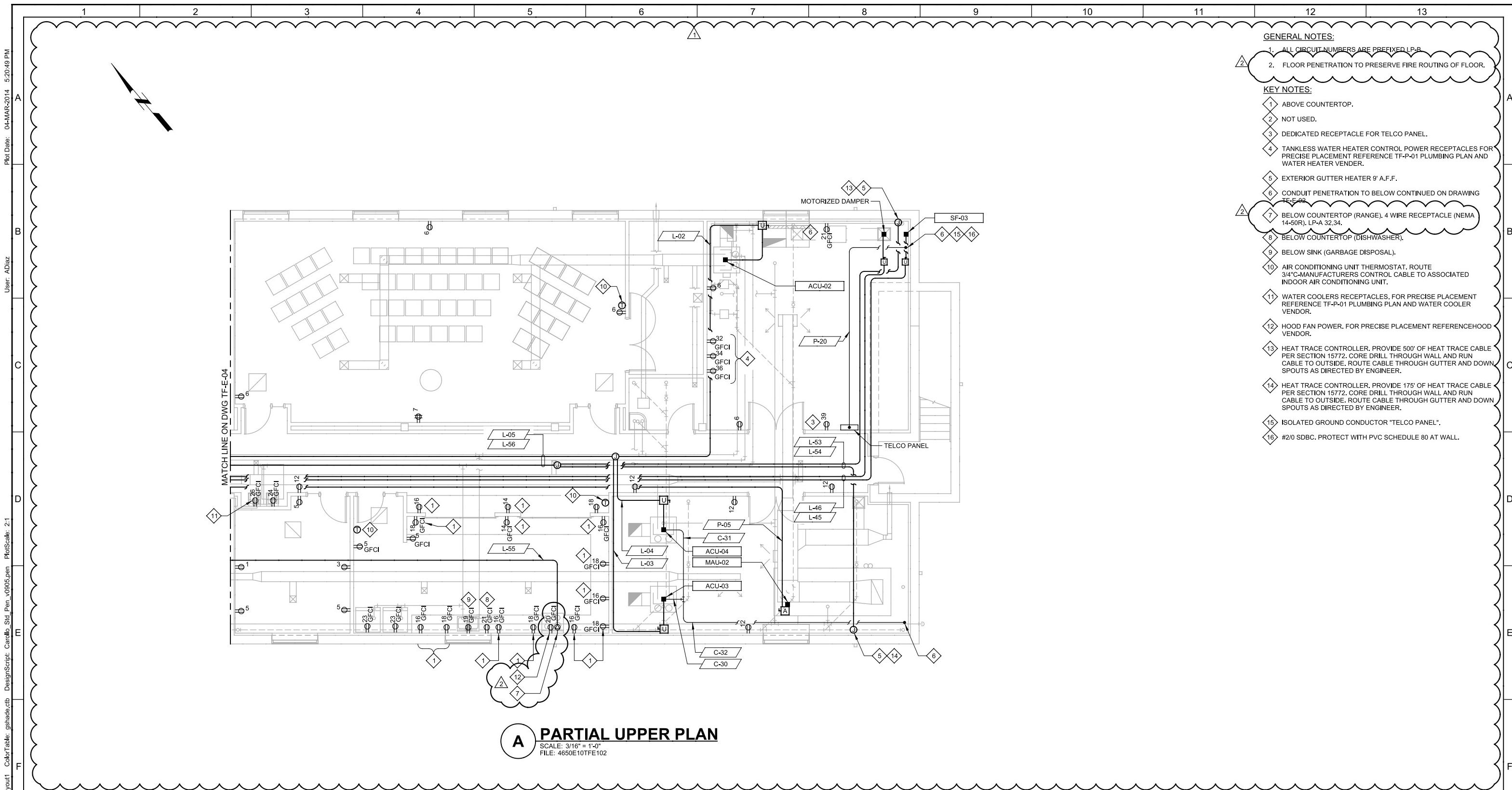
LAST SAVED BY:		DESIGNED		DRAWN		CHECKED		VERIFY SCALES	
DATE	BY	IRV	AD	PROJECT ENGINEER	ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 36570 **	PROJECT MANAGER	ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **	BAR IS ONE INCH ON ORIGINAL DRAWING	JOB NO.
REV	DATE	IV	IV	JGB	DATE	JANUARY 2014	**	0	4650E10
DESCRIPTION								1"	
ADDENDUM NO. 2									DRAWING NO.
ADDENDUM NO. 1									TF-E-05

carollo



EAST CANYON WATER RECLAMATION FACILITY
TRAINING / FLEET FACILITY AND SEISMIC UPGRADES
ELECTRICAL
TRAINING/FLEET FACILITY
PARTIAL UPPER PLAN - POWER & CONTROL

VERIFY SCALES
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY
DRAWING NO.
SHEET NO.
82 OF 106



LAST SAVED BY: adiaz		DESIGNED IRV	DRAWN AD	CHECKED JGB	PROJECT ENGINEER DATE JANUARY 2014	PROJECT MANAGER ** ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 36570 **
	02-28-14	IV	ADDENDUM NO. 2			
	02-21-14	IV	ADDENDUM NO. 1			
REV	DATE	BY	DESCRIPTION			

1	2	3	4	5	6	7	8	9	10	11	12	13



EAST CANYON WATER RECLAMATION FACILITY
TRAINING / FLEET FACILITY AND SEISMIC UPGRADES
ELECTRICAL
TRAINING/FLEET FACILITY
PARTIAL UPPER PLAN - POWER & CONTROL

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING	JOB NO. 4650E10
DRAWING NO. TF-E-06 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 83 OF 106

1 2 3 4 5 6 7 8 9 10 11 12 13

GENERAL NOTES:

1. ALL NUMBERS PREFIXED BY LP-A UNLESS OTHERWISE NOTED.

KEY NOTES:

-  EF-06 & 07 SWITCHED BY MOTOR SENSOR ON SAME CIRCUIT AS LIGHTING.

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User: Diaz

PlotScale: 2:1

DesignScript: v0905.pen

ColorTable: gshade.ctb

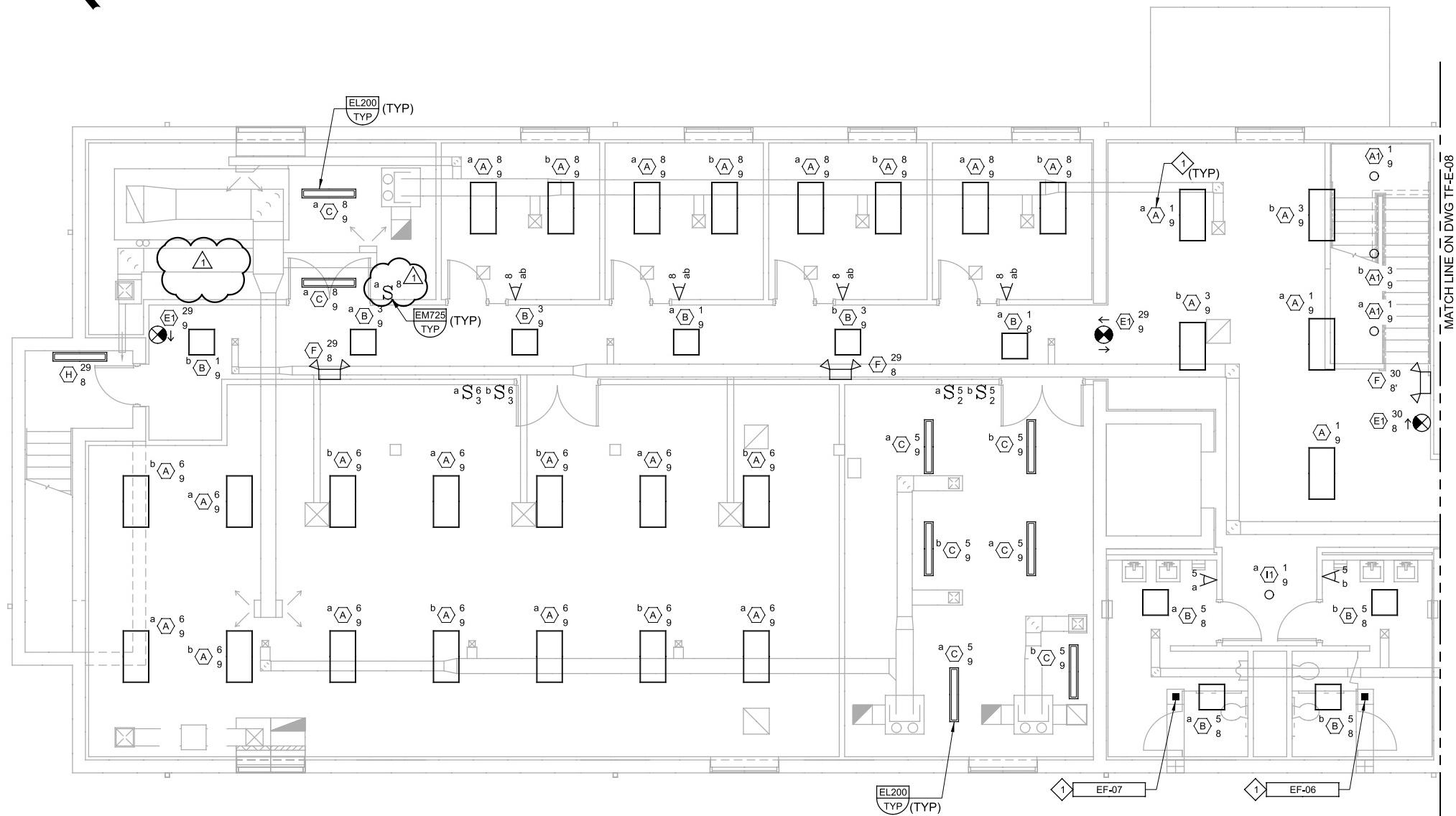
Model: Layout1

Layout1

Drawing: 4650E10TFE101

File: 4650E10TFE101.dgn

LAST SAVED BY: adiaz



A **UPPER PLAN**
SCALE: 3/16" = 1'-0"
FILE: 4650E10TFE101

DESIGNED		DRAWN		PROJECT ENGINEER		PROJECT MANAGER		LAST SAVED BY: adiaz	
02-28-14	IV	ADDITION NO. 2		** JOHN G. BRIONES 1/28/14 UT 3/6570		** CRAIG T. ASHCROFT 1/28/14 UT 18/341		02-28-14	
REV	DATE	BY	DESCRIPTION	JGB		**		DATE	JANUARY 2014

1 2 3 4 5 6 7 8 9 10 11 12 13



EAST CANYON WATER RECLAMATION FACILITY

TRAINING / FLEET FACILITY AND SEISMIC UPGRADES

ELECTRICAL

TRAINING/FLEET FACILITY
UPPER PLAN - LIGHTING

VERIFY SCALES	JOB NO.
BAR IS ONE INCH ON ORIGINAL DRAWING	4650E10
DRAWING NO.	TF-E-07
SHEET NO.	0 OF 106

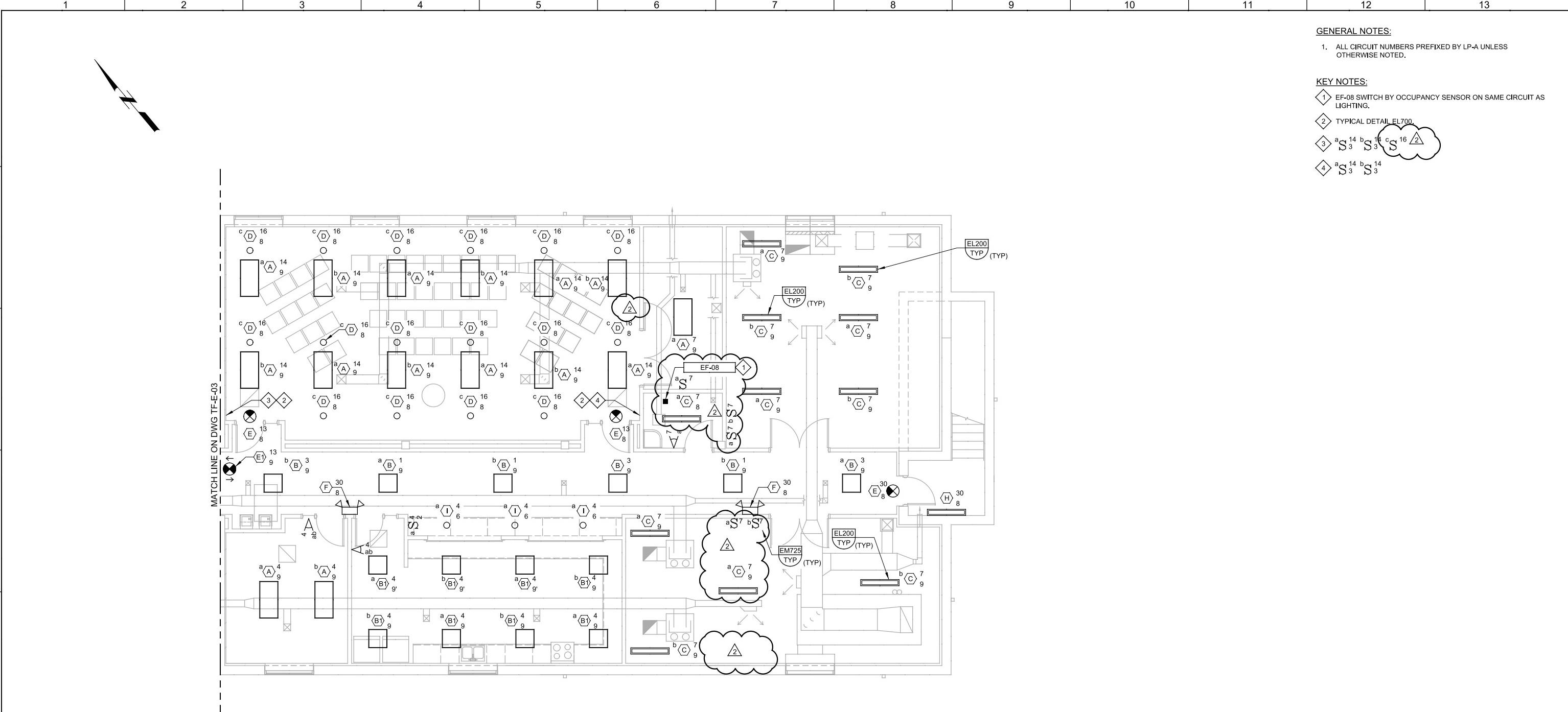
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User: Adiaz

PlotScale: 2:1

Model Layout1 ColorTable: gshade.ctb DesignScript: v0905.pen

LAST SAVED BY: adiaz



A **UPPER PLAN**
SCALE: 3/16" = 1'-0"
FILE: 4650E10TFE101

DESIGNED		DRAWN		PROJECT ENGINEER		PROJECT MANAGER	
02-28-14	IV	AD		ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 36570		ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341	
CHEKED	JGB	**		**		**	
DATE	JANUARY 2014						
REV	BY	DESCRIPTION					



EAST CANYON WATER RECLAMATION FACILITY

TRAINING / FLEET FACILITY AND SEISMIC UPGRADES

ELECTRICAL

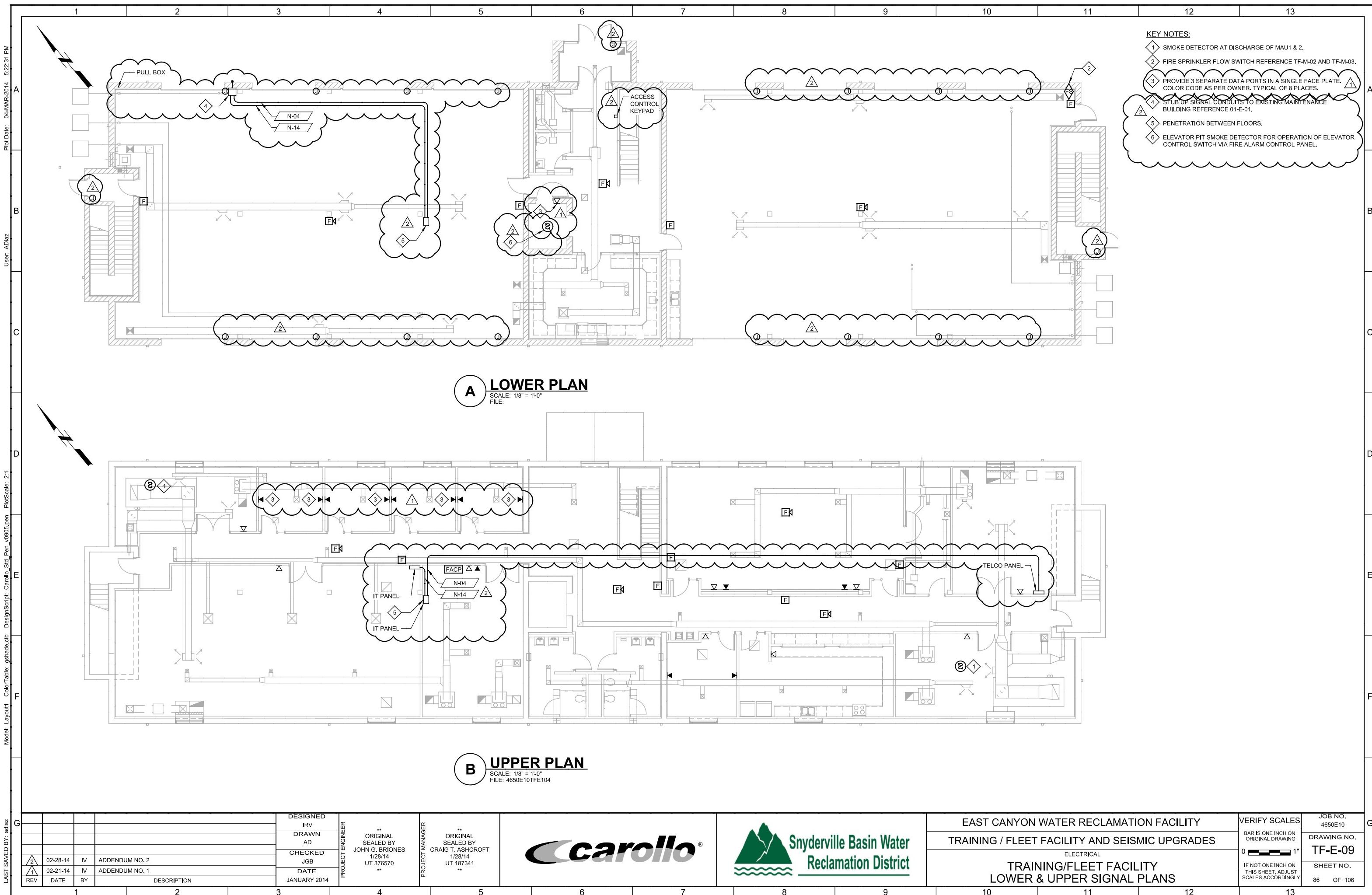
TRAINING/FLEET FACILITY
UPPER PLAN - LIGHTING**GENERAL NOTES:**

1. ALL CIRCUIT NUMBERS PREFIXED BY LP-A UNLESS OTHERWISE NOTED.

KEY NOTES:

- 1 EF-08 SWITCH BY OCCUPANCY SENSOR ON SAME CIRCUIT AS LIGHTING.
- 2 TYPICAL DETAIL EL700
- 3 a S¹⁴ b S³ c S¹⁶ △²
- 4 a S¹⁴ b S¹⁴ S³

VERIFY SCALES
BAR IS ONE INCH ON
ORIGINAL DRAWINGJOB NO.
4650E10DRAWING NO.
TF-E-08IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLYSHEET NO.
85 OF 106



LAST SAVED BY: adiaz		DESIGNED DRAWN CHECKED REV	DRAWN AD ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 36570 **	PROJECT ENGINEER ** ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **	PROJECT MANAGER **	DATE JANUARY 2014
02-28-14 02-21-14 DATE BY	IV ADDENDUM NO. 2 IV ADDENDUM NO. 1 DESCRIPTION					

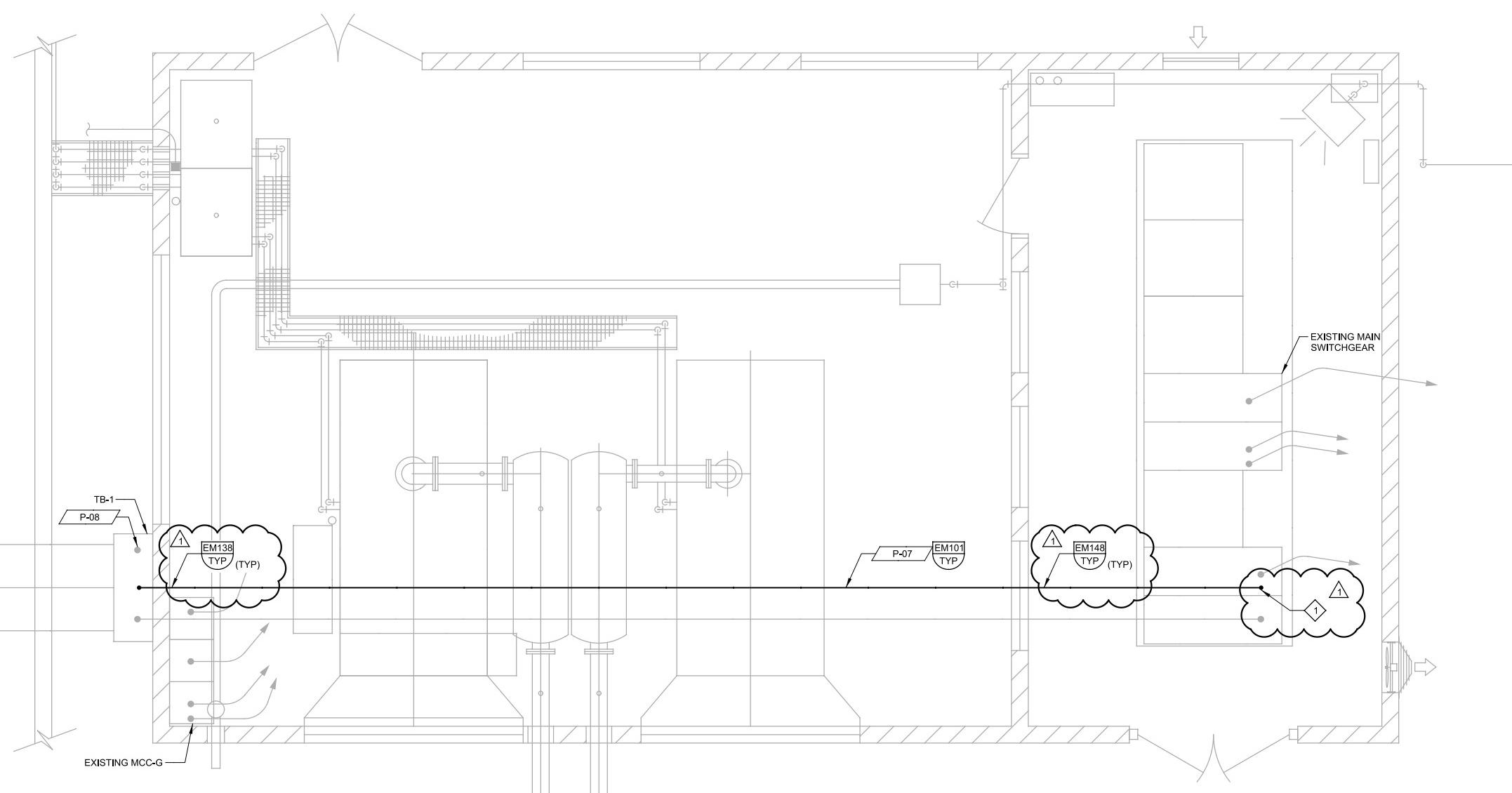
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KEY NOTES:
 ROUTE TO SWG-09.

Plot Date: 04-MAR-2014 5:17:25 PM

User: Adiaz
Model Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std Pen v09005.pen PlotScale: 2:1

LAST SAVED BY: adiaz

TO MH-E03
(SEE DWG 01-E-01
FOR CONTINUATION)

A PLAN
SCALE: 3/8" = 1'-0"
FILE: 4650E10EGE101

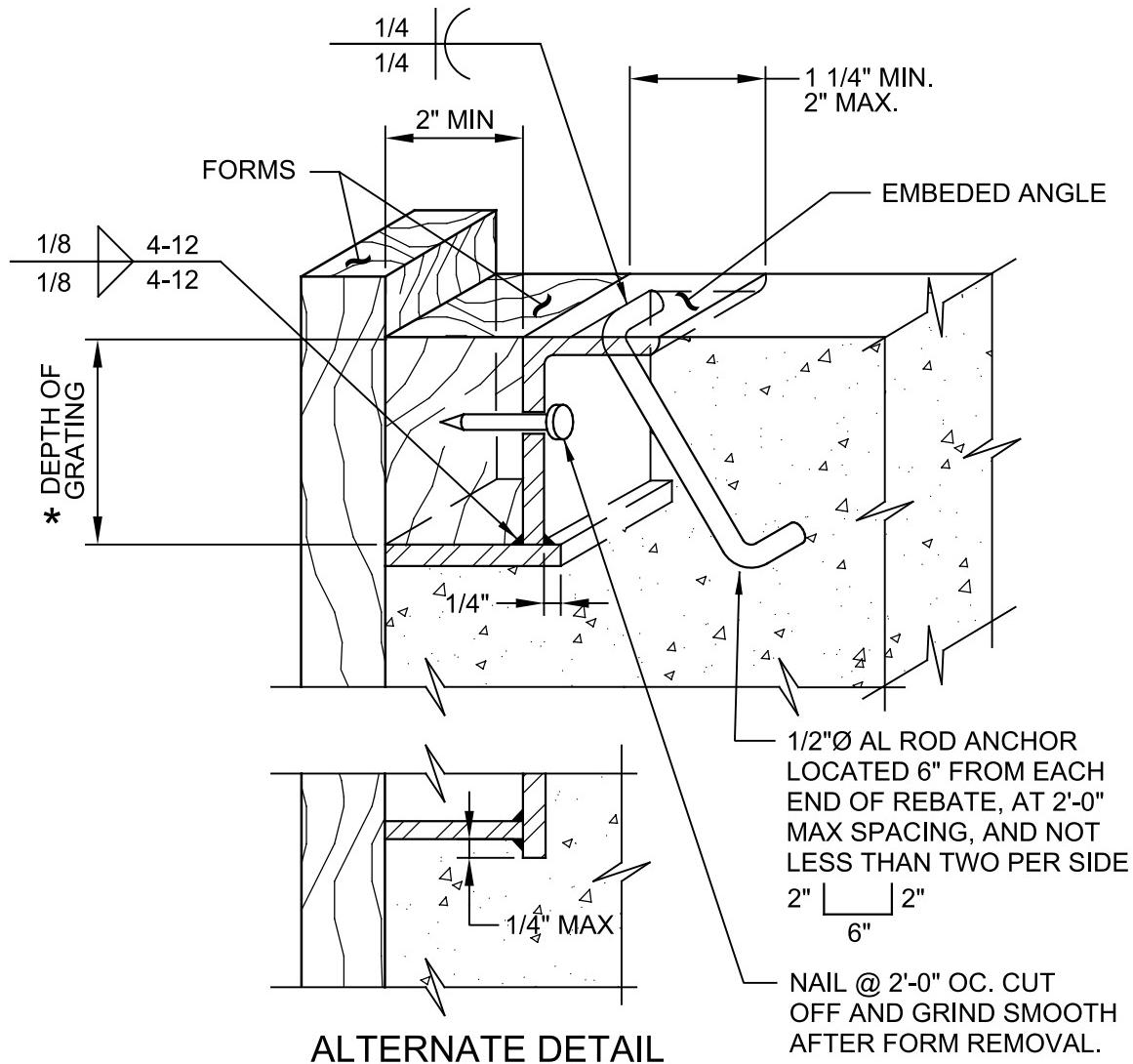




EAST CANYON WATER RECLAMATION FACILITY
TRAINING / FLEET FACILITY AND SEISMIC UPGRADES
ELECTRICAL
EMERGENCY GENERATOR BUILDING PLAN
POWER & CONTROL

			DESIGNED IRV			
			DRAWN AD	** ORIGINAL SEALED BY JOHN G. BRIONES 1/28/14 UT 3/6570 **		
			CHECKED JGB DATE JANUARY 2014	** ORIGINAL SEALED BY CRAIG T. ASHCROFT 1/28/14 UT 187341 **		
			PROJECT ENGINEER	PROJECT MANAGER		
1	2	3	4	5	6	7
REV	DATE	BY	DESCRIPTION			

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING	JOB NO. 4650E10
DRAWING NO. EG-E-01	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	



GRATING REBATE

NOTES:

1. FOR H-20 HEAVY DUTY STEEL GRATING, SEE SPECIFICATIONS.
2. REBATE SHALL BE CONTINUOUS AROUND ENTIRE OPENING.
3. PLATE SHALL BE 1/4" MIN THICK.
4. HOT-DIP GALV AFTER FABRICATION.

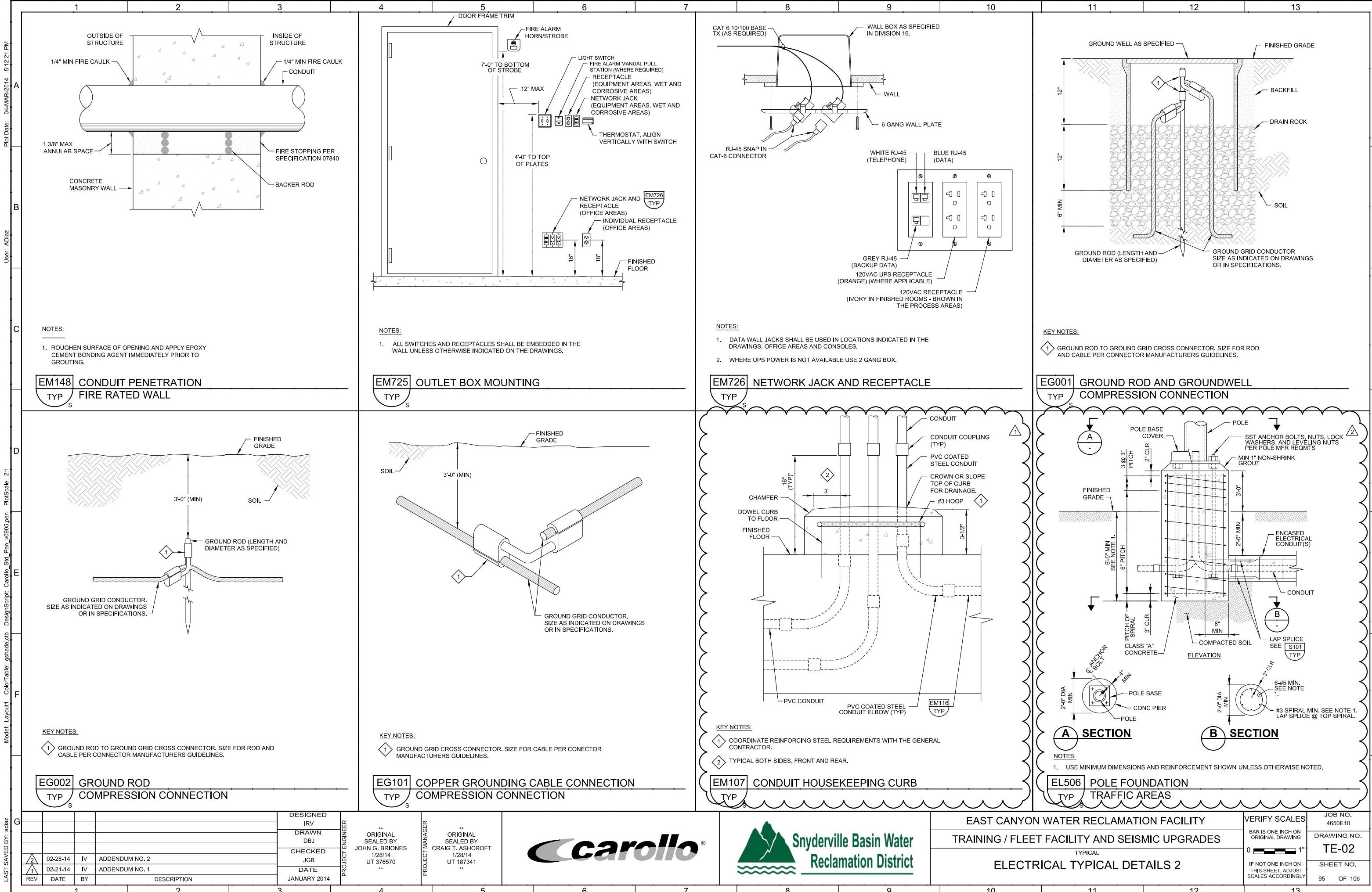
A406

H-20 HEAVY DUTY STEEL GRATING REBATE

TYP

07/31/08

carollo



Plot Date: 04-MAR-2014 10:29:37 AM

User: T. Donnell

Plot Scale: 1:200

Design Script: Carollo Std Pen v0905.dwg

Model Layout1 ColorTable: gshade.ctb

Last Saved By: tdonnell

1 2 3 4 5 6 7 8 9 10 11 12 13

A

REINFORCING BARS

ALL-THREAD RODS

NOTE:
1. INSTALLATION OF REINFORCING BARS AND ALL THREAD RODS AS INDICATED IN THE SPECIFICATIONS.

S194 EPOXY BONDED REINFORCING BARS OR ALL THREAD RODS
TYP N
04/30/07

B

PLAN

SECTION

C

NOTES:
1. SAW CUT EDGES OF AREA WHERE CONCRETE WILL BE REMOVED A MINIMUM OF 1/2" DEEP. DO NOT CUT REINFORCING BARS, DO NOT CUT PAST OUTSIDE CORNERS.
2. CHIP OUT DAMAGED OR DEFECTIVE CONCRETE WITH HAND HELD PNEUMATIC CHIPPING GUN. DO NOT CUT OR DAMAGE REINFORCING BARS.
3. IF MORE THAN 1/3 OF BAR DIAMETER IS EXPOSED REMOVING DAMAGED OR DEFECTIVE CONCRETE, REMOVE ADDITIONAL CONCRETE TO A MINIMUM 1" BEHIND THE BARS.
4. CONCRETE SURFACES TO BE REPAIRED SHALL BE CLEANED AND ROUGHENED TO 1/8" AMPLITUDE.
5. SOAK CONCRETE IN REPAIR AREA WITH WATER FOR MIN 24 HOURS JUST BEFORE PLACING REPAIR CONCRETE. CONCRETE IN REPAIR AREA TO BE REPAIRED SHALL BE SATURATED AND SURFACE DAMP WHEN REPAIR CONCRETE IS PLACED.
6. FOR THE REPAIR OF VERTICAL CONCRETE SURFACES, SLOPE TOP SURFACE OF CHIPPED OUT AREA SLIGHTLY TOWARD FORMS TO ALLOW AIR TO ESCAPE DURING PLACEMENT OF REPAIR CONCRETE.
7. WATER CURE REPAIRED CONCRETE FOR MINIMUM OF 7 DAYS. KEEP REPAIRED AREA CONTINUOUSLY MOIST.

S204 CONCRETE REPAIR - SURFACE
TYP
06/25/13

S204 CONCRETE REPAIR - SURFACE
TYP
06/25/13

S300 EQUIPMENT SLAB
TYP R
01/02/14

D

E

F

G

LAP SPICE LENGTH (INCHES)

BAR SIZE	LAP SPICE LENGTH (INCHES)			
	8" CMU BAR CENTERED IN WALL	6" CMU BAR @ FACE OF WALL	12" CMU BAR CENTERED IN WALL	12" CMU BAR @ FACE OF WALL
#4	21"	26"	21"	26"
#5	26"	40"	26"	40"
#6	42"	54"	40"	54"
#7	58"	63"	46"	63"

MASONRY NOTES
TYP R
02/26/14

REINFORCED MASONRY WALL
TYP
07/31/08

REINFORCED MASONRY WALL
TYP
07/31/08

REINFORCING AT MASONRY BOND BEAM
TYP
08/01/05

NOTES:
1. ACI STANDARD 90° HOOK ON HORIZONTAL BARS AT OPENINGS.
2. FOR ADDITIONAL REINFORCING, SEE DRAWINGS.
3. DO NOT PLACE VERTICAL CONDUITS IN CELLS WITH VERTICAL REINFORCING BARS.

DESIGNED
CE
DRAWN
CE
CHECKED
CE
DATE
JANUARY 2014
PROJECT ENGINEER

PROJECT MANAGER
**
ORIGINAL SEALED BY
CRAIG T. ASHCROFT
1/28/14
UT 187341
**

carollo®

Snyderville Basin Water Reclamation District

EAST CANYON WATER RECLAMATION FACILITY
TRAINING / FLEET FACILITY AND SEISMIC UPDATES
TYPICAL
STRUCTURAL TYPICAL DETAILS 3

VERIFY SCALES
JOB NO.
4650E10
BAR IS ONE INCH ON
ORIGINAL DRAWING
DRAWING NO.
TS-03
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY
SHEET NO.
104 OF 106